PUBLIC HEALTH ACT.

(11 & 12 Vict., Cap. 63.)

REPORT

TO THE

GENERAL BOARD OF HEALTH

ON A

PRELIMINARY INQUIRY

INTO THE SEWERAGE, DRAINAGE, AND SUPPLY OF WATER, AND THE SANITARY CONDITION OF THE INHABITANTS

OF THE TOWN OF

CARDIFF.

By THOMAS WEBSTER RAMMELL, Esq.,

SUPERINTENDING INSPECTOR.

LONDON:

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FOR HER MAJESTY'S STATIONERY OFFICE.

1850.

NOTIFICATION.

THE General Board of Health hereby give notice, in terms of section 9th of the Public Health Act, that on or before the 15th of July next, written statements may be forwarded to the Board with respect to any matter contained in or omitted from the accompanying Report on the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Town of CARDIFF, or with respect to any amendment to be proposed therein.

By order of the Board,

HENRY AUSTIN, *Secretary.*

Gwydyr House, Whitehall,
1*st June* 1850.

PUBLIC HEALTH ACT (11 & 12 Vict., cap. 63).

Report to the General Board of Health on a Preliminary Inquiry into the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Town of CARDIFF, *in the County of Glamorgan.* By THOMAS WEBSTER RAMMELL, ESQ., Superintending Inspector.

Gwydyr House, Whitehall,
5th March, 1850.

MY LORDS AND GENTLEMEN,

A PETITION, signed by more than one-tenth of the rated inhabitants of the town of Cardiff, having been presented to your Honourable Board, alleging;—

"That the drainage of the said town is generally in a very improper and unsatisfactory state;—

"That in the said town there is a large labouring population whose dwellings are entirely devoid of proper drainage, to the manifest injury of the health of the occupants;—

"That there is a local Act of Parliament in force within the said town for paving, lighting, and cleansing the same, which is administered by Commissioners; but that the powers contained in that Act are insufficient to remedy the evils complained of; —

"That there are powers contained in the Public Health Act, 1848, which, in the opinion of your petitioners, might be most beneficially applied to the said town;—regulation of lodging-houses, private drains to be made by owners, regulation of width and levels of intended streets, regulation of lowest floors of dwellings, division of rates into special and general district rates, private improvement rate, and the provision for the repayment of rates, composition of rates by owners of houses under 10*l.* a year, estimates of rates open to public inspection before being made,—all which powers are at present unprovided for by the said local Act;"—

and praying that a Superintending Inspector might be directed to make inquiry and examination with a view to the application of the Public Health Act to the town;—you were pleased to direct me to proceed to the parts, and to make a preliminary inquiry in accordance with the provisions of the Act, and with respect to the following matters, viz.:—

"The sewerage, drainage, and supply of water.

"The state of the burial grounds.

"The number and sanitary condition of the inhabitants.

"The local Acts of Parliament in force within the town for paving, lighting, cleansing, and watching, regulating, supplying with water, or improving the same, or having relation to the purposes of the Public Health Act, 1848.

"The natural drainage areas, and the existing municipal, parochial, or other local boundaries, and the boundaries which may be most advantageously adopted for the purposes of the Public Health Act, 1848.

"And also as to other matters with respect to which your Honourable Board was desirous of being informed."

In pursuance of these directions, I caused the proper notice to be issued of my intention to enter upon such inquiry at the Town Hall, Cardiff, on the 4th of July 1849, when I should be prepared to hear all persons desirous of being heard before me upon the various subjects of it.

On proceeding on that day to the place of meeting, I found present a considerable number of the more influential inhabitants —Mr. Walter Coffin, Mayor; the Rev. W. Leigh Morgan, Vicar of St. Mary's; the Rev. Thomas Stacey, Curate of St. John's; Mr. R. Lewis Reece, ex-Mayor; Mr. E. P. Richards, Town Clerk; Mr. C. C. Williams, Chairman of the Street Commission; Alderman Reece, Alderman Lewis; Dr. Vachell, medical officer, and Mr. H. T. Paine, assistant medical officer to the Union; Mr. T. Watkins, clerk to the Street Commissioners; Mr. W. Done Bushell, managing director of the Taff Vale Railway Company; Mr. C. Vachell, Mr. John Bachelor, Mr. Bernard, C.E.; Mr. Jno. Bird, Mr. Matthews, Mr. Insole, Mr. Webber, Mr. W. B. Watkins, Mr. Lloyd, Mr. Bowen, Mr. Morgan Thomas, Mr. Evans, Mr. David Evans, Mr. Philpotts, Mr. Philip Bird, Mr. Lewis, Mr. Edwards.

Having read the petition; briefly explained the object of the inquiry, and the provisions of the Act under which it was brought; and proved the due publication of notices; I invited any gentleman who might think proper to do so, to make whatever observations he desired, either in support of or in opposition to the prayer of the petition.

Mr. R. Lewis Reece proceeded to describe the manner in which the petition had been got up,—he having as it appeared been mainly instrumental,—and to defend the genuineness of the signatures, which, he said, had elsewhere been called in question; but I thought it right to interrupt him in this course, by stating that I was not there to inquire into the validity of that document, which had been submitted to, and been under the consideration of, your Honourable Board.

Mr. E. P. Richards expressed a wish to see the petition and the signatures, "not with a view of questioning the genuineness of it, but simply to see and read the signatures." To this proposal I declined to accede; and a conversation took place upon the point thus raised which occupied a considerable time, and in the course of which I again read the petition.

Mr. E. P. Richards then addressed himself to the subject-matter of the inquiry, which, he said, he did not object to,

publicity being all he sought on behalf of the Commissioners, who had the permanent advantage of the town at heart. He stated that as long ago as 1774 an Improvement Act had been in force in the town, which had been repealed by the present local Act, passed in 1837; that he was the solicitor who obtained this Act on behalf of the Commissioners; and that he considered it was as complete an Act of the kind as could be obtained in those days. Under the provisions of this Act the Street Commissioners were appointed; they were — Her Majesty's Justices of the Peace for the Town, the Constable of the Castle, the Mayor, Aldermen, and Town Clerk of the borough, and certain parties who were named in the Act, who were at that time persons of unquestionable respectability, and being the chief rate-payers of the town; in all from 40 to 50 persons, exclusive of the public officers he had named. At the death of any of them their places were to be filled up by the surviving Commissioners when they thought proper. They were a self-elected body; their meetings were seldom well attended, unless questions which caused excitement were to be brought forward. Last year 14 vacancies were filled up by the appointment of other Commissioners. The persons who were elected were of strict integrity, and also some of the largest rate-payers in the town. They comprehended men of all shades of opinion, and of all parties; in fact, there was no opposition offered to the election of any respectable man, whatever his politics or opinions might be. He (Mr. Richards) mentioned this in order to show that the constitution of the Commissioners was as perfect as it could be according to the Act of Parliament; and whether self-elected or otherwise, that all shades of opinion were represented. But how did it stand with regard to 'self-election?' The Mayor and Aldermen were *ex officio* members, and the councillors were nearly all Commissioners. He hoped they would not misunderstand each other. Many of the gentlemen who had signed the petition were parties with whom he and those whom he represented had all their lives acted. He did not quarrel with them because they wished to introduce the Health of Towns Act into Cardiff; if it were for the benefit of the town, let it be done.

In his succeeding remarks, Mr. Richards said that the Commissioners all admitted that there were provisions in the new Act which the local Act did not contain, that would be beneficial to the town. They only wanted to guard themselves against having taken from them those clauses in the local Act which experience found to have a salutary tendency.

Upon this I reminded him that it did not follow that because the new Act might be introduced, the local Act would be entirely superseded.

This, Mr. Richards said, he was aware of; but proceeded to contend against the principle of centralization, which he conceived to be involved in the Public Health Act. He then stated

that a public meeting had been held in the town the year previous, having been convened by Mr. Lewis Reece, the then Mayor, to inquire as to the expediency of applying for the introduction of the Health of Towns Act, and that a Committee had been appointed which had reported against the projected measure.

At the request of certain parties, Mr. Bernard read the Committee's report. It was contended by several persons in the room, that the reasons given by the Committee for arriving at the opinion stated by Mr. E. P. Richards, ought to have led them to a different conclusion.

Several other gentlemen afterwards spoke, some against, others in favour of the measure, and Mr. Coffin, the Mayor, remarked upon the difficulties by which the inquiry was beset, and the bad position of the town in regard to level for drainage; but urged upon all parties the desirability of acting with unanimity and good feeling, and expressed his own readiness to give every information in his power.

After receiving from Mr. Smart and others, a list of places where nuisances existed, I adjourned the proceedings, and in company with a great number of the gentlemen present, proceeded to make a tour of the town, inspecting generally the locality and condition of the streets, courts, and habitations.

The inquiry was renewed on the following day (the 5th July), when I commenced taking evidence, and continued doing so on each successive day till the conclusion of the inquiry on the 10th. On the afternoons of the several days I made further and minute inspections of various parts of the town and surrounding district.

General Description.—The town of Cardiff is situated on the east side of the River Taff, in the county of Glamorgan, about a mile to the north of the point where it falls into the Bristol channel, and about three miles to the north of the mouth of the River Ely. These two rivers fall into a small bay, known as Cardiff Harbour, which is bounded on the north by the Cardiff Moors, and on the south by Penarth Head, the entrance to it being by the Penarth or Cardiff roads.

Being the natural outlet for the extensive mineral district, of which Merthyr Tidfyl is the capital, Cardiff, from an insignificant country town, has grown into a place of considerable importance in the course of the last century, and shows every sign of increasing populousness and enterprise.

The Taff Vale Railway and Bute Docks. — Until within a few years ago, the Glamorganshire Canal, which was partially opened in 1794, and completed in 1798, was the only channel by which the mineral products of the interior were conveyed to the coast, and afforded the only point of embarkation for the numerous vessels trading in their export. In 1840, however, the Taff Vale Railway was opened, affording additional means of conveyance for the land transit. During the period of the construction of this work, the late Marquis of Bute, a large owner of the mineral tracts of the county

of Glamorgan, perceiving the manifest insufficiency of the existing accommodation for the shipment of the vast and increasing cargoes of coal and iron produced in the district, and being the owner of a large tract of low ground called the "Cardiff Moors," intervening between the town and the Bristol Channel, conceived the idea of converting a portion of it into a spacious harbour or dock, at or near the terminus of the Taff Vale Railway. Accordingly in 1830 he obtained an Act of Parliament, empowering him "to make and maintain a ship canal, commencing near the mouth of the River Taff, in the county of Glamorgan, and terminating near the town of Cardiff, with other works to communicate therewith," which Act was amended, by an Act obtained in the year 1833, giving enlarged powers. The works were commenced in 1834 with the construction of a "feeder" from the River Taff; the first stone of the docks was laid on the 10th March, 1837, and the docks opened on the 9th October, 1839.

The shallow estuary of the two rivers above mentioned forms "Cardiff Harbour," the Cardiff Flats, which are chiefly composed of mud, extend a mile or more from "The Moors" into the channel. A straight open canal, 1,250 yards in length, has been cut through this mud bank from a part of the roadstead called the Eastern Hollows, to the dock gate. Captain Smyth, R.N., in his "Nautical Observations on the Port and Maritime vicinity of Cardiff," says:—

"The alignment or trend of this channel is N.N.E. and S.S.W. by the compass, being led thus to be effectually sheltered by Penarth Point; and throughout the whole length, as early as half tide, there are from 9 to 12 feet of water, deepening at high water to 32 feet 6 inches in springs, and 22 feet 7 inches in neaps."

This channel, the same author states, is widening daily, by the natural falling in of the banks on either side; and in order to carry off the deposits resulting from the falls or land slips, a reservoir has been constructed beside the docks, supplied by "the feeder," and capable of containing upwards of 100,000 tons of water, which by means of three cast-iron pipes, 5 feet diameter, may be used at any time to flush the mud-cut or outer channel.

"The floating harbour or dock is entered through sea-gates of 45 feet width, which open into a spacious basin, with an area of about an acre and a half, and calculated for vessels of great tonnage. The main entrance lock is situated at the north end of this outer basin, it is 152 feet long, by 36 feet wide, dimensions which are assumed for the loading of ships of 600 tons burthen. Passing this lock the ship canal is entered; it extends in a continuous line towards the town of Cardiff, 1,400 yards in length, and 200 feet wide, comprising a mile of fine wharfage, and varying in depth from 19 to 13 feet."

The outlay of money upon the whole of these works is stated to have exceeded 300,000*l*. The value of the ground, as well as that of the lime, stone, and wood for piles, is not included in this

sum; these materials having been taken from the estates of the Marquis.

The following table exhibits a comparative statement of the trade of the port of Cardiff, since the year 1831 :—

A Comparative Statement of the Trade of the Port of Cardiff.

Year.	Foreign Trade. Vessels with Cargoes		Coasting Trade. Vessels with Cargoes		Value of Exports.	Total Vessels Cleared with Cargoes.	Coal.	
	Inwards.	Outwards.	Inwards.	Outwards.			Coastwise.	Foreign.
					£.		Tons	Tons.
1831	8	144	773	1,790	137,170	1,934	..	..
1832	7	179	736	2,317	152,440	2,496	..	..
1833	12	153	1,047	2,466	215,910	2,619	..	..
1834	14	166	975	2,552	204,360	2,718	..	..
1835	19	195	1,133	2,586	214,730	2,781	123,279	..
1836	22	104	1,077	2,445	272,350	2,549	130,989	..
1837	32	238	1,092	2,754	272,300	2,992	169,248	..
1838	25	292	1,073	2,449	362,200	2,741	123,614	..
1839	27	230	1,245	2,674	305,700	2,904	145,057	..
1840	29	276	1,061	2,873	335,000	3,149	162,568	3,312
1841	18	334	921	2,704	372,446	3,038	153,667	4,066
1842	24	396	855	3,257	281,633	3,653	239,787	5,701
1843	17	417	892	3,593	339,959	4,010	265,751	9,106
1844	24	541	839	4,140	441,486	4,680	327,452	22,498
1845	31	409	944	5,636	533,227	6,045	414,159	32,498
1846	55	515	1,338	5,668	518,230	6,183	438,781	45,508
1847	54	809	1,330	5,766	697,970	6,575	429,448	81,274
1848	119	964	1,165	6,522	729,094	7,486	544,196	115,604

Site, &c.—The ground upon which the town of Cardiff is built is nearly a dead flat, and very little above the ordinary rise of the sea. The old part of the town, which is that furthest from the mouth of the river, and consequently from the Bute Docks, is but slightly raised above the general level. The highest point, the Town-hall, is not more than 10 feet above that level. The general surface of the Flat is about 2 feet below the spring tide level, about 8 feet above the level of high water neaps.

The level of the floating dock and of the Glamorganshire Canal, as far as the first lock in Crockherbtown, is the same as the spring tide level. The influence of the advancing spring tides extends up the Taff as far as about a quarter of a mile above the bridge, and a portion of the flat land along the banks, and particularly that part near the bridge, is at these times covered by the tide. Mr. G. Clinton, surveyor to the Commissioners, says, he has seen the whole of the flat land on the west side of the town under water. This happens when both the Ely and the Taff are flooded at the time of the springs.

Both these rivers fall very rapidly, and bring down at times immense volumes of water; but the Ely is not rapid in the lower part of its course, running for miles, very circuitously through the Flat, before it reaches the sea.

The low ground on the east side of the town is protected by a sea wall or bank, running along the shore of the channel all the way to Newport. Mr. Clinton states, that "he has heard that portions of this bank have at times given way and caused an inundation;" he adds,—

"I have never seen the river Rumney overflow its banks. The ditches on this, the Eastern Flat, are very large, and afford ample storage room for the surface water. I have never seen any large portion of the town under water; although some streets are occasionally flooded after heavy rains, when the gratings happen to be stopped up. I have known this happen in Crockherbtown, and North-street."

Mr. Wm. Stanley's statement differs a little from that of Mr. Clinton, as regards the Rumney River; he says:—

"The Rumney River, before reaching the Bristol Channel, runs for about three miles through a dead flat, and during extraordinary spring tides overflows the road and the Flat from Rumney-bridge to the North Brook. This commonly happens once or twice every year. I have seen the mail-coach overset in one of these floods, but this was many years ago.

"I have never known the Flat inside the sea wall between the Roath Beach and Cardiff flooded, excepting when the sea wall had been broken through. I have not noticed much fever on the east side of the town. On the west side fevers are frequent, and it is notorious that there is much ague there. Near the workhouse, and on the Mole Flat on that side, water is found at 2 feet deep.

"The road at Canton (on the west side) is under water more or less deep every winter. This winter I could not go along the turnpike cross-road for the water. It might be 9 or 10 inches deep in the middle of the road; I have known the road to be under water for several days at a time. This is within a mile of the town, and close to the Union house. Between Canton and Leckwith, I have seen it 2 feet deep on the turnpike road. These floods are caused by the swelling of the river Ely, which is a slow and circuitous river; excepting on the north side of the town, the country round Cardiff is more or less inundated every winter."

There are several very large pools of stagnant water between St. Mary's Church and Bute Town, which it appears have recently been formed by the earth having been dug out for the purpose of making bricks. This part is below the level of the Glamorganshire Canal. There are dry docks along the banks of this canal, the floating water of which is discharged into the pits.

The substratum of the older, or inland portion of the town, as far down as Whitmore-lane, is a gravel, which quickly absorbs the surface-water; from this line down to the sea the gravel is overlaid by a stiff black clay. This clay is full 30 feet deep on the shore-line, and becomes thinner and thinner as it approaches Whitmore-lane, where it entirely disappears.

In the upper part of the town the gravel is from 6 to 8 feet

deep, under it is a hard red marl, which holds up the water, so that after continuous heavy rains the cellars are liable to be flooded from the accumulation of the land-water. In summer the bed of gravel is generally quite free from water. The marl becomes much intermixed with gravel as it becomes deeper. At 18 or 20 feet a little water is found, and at from 25 to 30 feet water is very abundant.

The surface of the gravel has a gentle inclination towards the south. It extends a long way eastward and westward of the northern part of the town. The clay is continuous along the line of the shore.

Landowners, Rental of Land, &c.—The ground is in very few hands. All the land south of Whitmore-lane, with very few exceptions, is the property of the Marquis of Bute. His lordship also owns a considerable portion of the north part of the town. The middle portion is chiefly in the hands of two or three persons, who grant building leases for long terms at rates varying from 2*s.* 6*d.* to 4*s.* per foot frontage. Some portions of the land are again underlet to speculators for building purposes.

The usual rental of the marsh-land on the west side of the Taff was stated by Mr. B. Bowen, overseer and surveyor of highways, to be from 20*s.* to 25*s.* an acre. The marsh-land on the east side is better drained, and the upper part on the gravel generally fetches from 35*s.* to 40*s.* an acre; the lower part over the clay bottom fetches only from 20*s.* to 25*s.*

The common rental of the better kind of arable land is about 30*s.* an acre.

There is but little market-garden land round the town, and consequently vegetables in large quantities are imported. These are brought from Cornwall, Devonshire, Somersetshire, and Bristol; and even from Ireland.

Rainfall.—Mr. E. David, of Fairwater, who has for a long period kept a register of the rainfall, was good enough to hand me the following very complete tables, showing the rainfall at Cardiff in the following years:—

Table of Rainfall at Fairwater, near Cardiff, for the Twenty Years 1824-43.

1824		1825		1826		1827		1828		1829		1830		1831		1832		183
In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.
53	80	38	50	30	25	49	40	51	80	44	65	44	30	50	85	40	70	51

1834		1835		1836		1837		1838		1839		1840		1841		1842		184
In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.
37	10	45	80	48	80	55	15	40	50	61	40	41	10	56	60	45	40	36

QUANTITY fallen in each Month during the above Twenty Years.

	January.		February.		March.		April.		May.		June.	
	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.
Total each Month for 20 Years . . .	66	75	78	25	63	5	52	15	45	95	63	95
Average each Month.	3	33¾	3	91¼	3	15¼	2	60¾	2	29¾	3	19¾

	July.		August.		September.		October.		November.		December.	
	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.	In.	Pt.
Total each Month for 20 Years . . .	73	95	79	55	92	35	95	45	116	55	96	30
Average each Month .	3	69¾	3	97¾	4	61¾	4	77¼	5	82¾	4	81½

Total Rain in Twenty Years 924 in. 25 parts. Average per year 46 in. 21¼ parts.

· *The Streets, Houses, and Public Buildings.*—Cardiff is a county town, and returns one member to Parliament, in conjunction with the boroughs of Cowbridge and Llantrissent.

The Improvement Act of 1837 defines the boundary for the purposes of that Act to be "co-extensive with the several parishes of St. John the Baptist and St. Mary, in the said town." The parish of St. John comprehends the older part of the town, that of St. Mary the more modern part, in the neighbourhood of the Bute Docks. St. John's church is a fine specimen of ancient ecclesiastical architecture; St. Mary's was completed in the year 1845. A fine church which formerly stood near the edge of the river, it is said, was undermined and washed away about two centuries ago, and the parish annexed to St. John's for ecclesiastical purposes only, about 45 years since.

Besides the two parish churches and the Town-hall, there are few public buildings worthy of note; and the aspect of the town generally, with the exception of the principal streets, may be said to be on a par with many other old country towns of a third or fourth class. It is very remarkable, and at the same time a fact upon which the improving and enterprising spirit of the age is not open to compliment, that the older part is the best, both as to the character and arrangements of the buildings; the houses in the newer part lying around the docks and towards the east and south, being of a very inferior description. Mr. G. Clinton, speaking of the middle and lower part, where building is now chiefly going on, says,—

"The houses are put up without any regard to level or uniformity of any kind, and the Commissioners have no power to compel them to attend to these points."

Immediately adjacent to the town on the north-west stand the ruins of the ancient castle, the old keep forming a very prominent feature. The ramparts have been planted, and with much consideration have been thrown open as a public promenade. Parts

of the old castle were converted, with additions, into a modern residence, by the late Marquis.

In the western direction on the outskirts of the town stands the Union workhouse, to the east of the town the county goal, which is considered to be healthily situated, standing on a bed of gravel. There are nine dissenting chapels in the town, and five schools, for affording education to about 1,000 children, one of which was built and founded by the late Marquis of Bute. There is also an infirmary open to the counties of Glamorgan and Monmouth, to which the Marquis of Bute and Daniel Jones, Esq., of Beaupré, have been the chief benefactors; the building was erected at the sole expense of the latter.

On my visits to the Union workhouse, the county gaol, and the infirmary, I was much gratified to observe the order and cleanliness which marked the arrangements of one and all of them.

Rental and Rateable Value of Houses.—The observations made previously as to the inferior character of the buildings in the new part of the town (St. Mary's), compared with those in the upper part (St. John's), will be borne out on an examination of the figures in the subjoined table of the number and rateable value of the houses in Cardiff.

A Return of the Number of Dwelling-Houses in the parishes of St. John the Baptist and St. Mary, in the borough of Cardiff, in the county of Glamorgan; and also the Gross Estimated Rental and Rateable Value of House Property. Extracted from the Poor-rates made and allowed for the said borough, on the 31st day of May, 1849.

Parishes.	£2 to £5	£5 to £10	£10 to £15	£15 to £20	£20 to £30	£30 to £40	£40 to £50	£50 to £60	£60 to £70	£70 to £80	£80 to £90	£110 to £120	£140 to £150	£410 to £420
St. John .	435	317	98	88	79	48	20	3	2	2	1	..	2	..
St. Mary .	470	463	94	82	43	18	4	3	..	4	2	1	..	1
Total .	905	780	192	170	122	66	24	6	2	6	3	1	2	1

St. John, gross estimated Rental. . . £14,035
,, rateable Value 11,228
St. Mary, gross estimated Rental . . 12,597
,, rateable Value 10,078

Benj. Bowen, Collector of Rates.

From this it will be seen that (excluding the last house, rated at between 410*l.* and 420*l.*, which is not a dwelling-house), there are 1,184 houses in St. Mary's, rated at 9,962*l.*; whilst in St. John's there are 1,075 houses, rated at 11,228*l.* It will further be seen that the numerical preponderance in St. Mary's is in houses rated under 10*l.*; whilst of houses rated between 10*l.* and 70*l.*, there is a large balance in favour of St. John's.

Area.—The area of the parish of St. John's is 928 acres; that of St. Mary's is 828 acres.

Population.—The population of Cardiff was, in

1801 .	4,672
1831 .	6,189
1841 .	10,079

The population during the last twenty years has, as may be supposed, been very fluctuating; the immigration induced by the public works going on during the early and middle portions of that period being very considerable. The stimulus so afforded has not applied since in equal proportion, and there is much reason to believe that the average population of the ten years since 1841 has not much, if at all, exceeded the amount given in the census of that year.

Mortality.—The remark just made as to the fluctuating character of the population of this place during the last 20 years must be taken into account when considering the mortality returns, from which, otherwise, erroneous or extravagant deductions might be drawn as to the sanitary condition of the place.

The following table exhibits a statement of the births and deaths in the town of Cardiff, distinguishing the parishes of St. John and St. Mary, during the seven years, 1842 to 1848. Extracted from the *Registration Returns.*

Years.	Total Births.		Deaths under 12 Months.		All Deaths under 5 Years		All Deaths under 20 Years.		Total Deaths.		Deaths from Epidemic, Endemic, and Contagious Diseases.	
	St. John.	St. Mary.	St. John.	St. Mary.	St. John.	St. Mary.	St. John.	St. Mary.	St. John.	St. Mary.	St. John.	St. Mary.
1842	169	203	42	53	66	86	79	93	152	158	19	23
1843	170	179	28	35	43	66	51	79	113	137	9	9
1844	138	168	29	36	66	77	91	100	182	168	36	48
1845	114	158	23	38	41	76	57	90	130	155	8	22
1846	134	211	30	48	53	76	65	89	125	168	7	13
1847	156	187	44	61	81	107	105	140	249	227	51	63
1848	170	275	44	87	90	182	110	223	213	355	35	73
Total .	1,051	1,381	240	358	440	670	558	814	1,164	1,368	165	241
	2,432		598		1,110		1,372		2,532		406	

The first fact which strikes the attention in the above return is, that the deaths during the period to which it refers have exceeded the births by 25 to 24, or about 4 per cent.; and yet the population, though it has not increased in the same proportion as in the ten preceding years, has done so a little. This state of things can only be accounted for upon the supposition of a constant and considerable influx of strangers; a visitation to which, as will appear

from subsequent statements in this Report, Cardiff has been subjected to a greater amount than any other seaport town of the same dimen sions, and probably to a much greater proportionate amount than Liverpool itself. And the worst of these straggling accessions to a local population is, that they too generally consist of the most wretched members of the society from which they have, as it were, been cast forth—generally in a starving condition, often already afflicted with disease, or carrying the seeds of it about them. Of necessity many of these immigrants will die before they have dwelt so long in the new community upon which they have thrown themselves, that their deaths should be in anything like fair proportion to the general numbers of the population which they have temporarily swelled. Their afflictions, moreover, will extend to their neighbours; and contagious diseases imported by them will materially modify the sanitary condition of the place as resulting from local circumstances.

At the same time, whilst it appears right to draw attention to the circumstance, it would not be right to attach too much weight to it as an excuse or palliative of an excessive mortality. Under ordinarily favourable circumstances, the influx of stranger labourers —who come chiefly at an age when the dangers and diseases of early youth are passed — would not tend to increase the ratio of mortality to population; and even supposing many of them should come in a starving or diseased state, as is the case at Cardiff, good work and wholesome food and lodging when they got there would for the major part restore them; whilst proper local sanitary arrangements would avert the danger of infection. These are considerations for the application of which the following Report will afford frequent occasion.

Another circumstance, still tending to dictate caution when attempting to make an allowance in a proved excessive mortality, upon the ground of a large influx of destitute strangers, as in Cardiff, would appear in the following fact:—the excessive proportion of mortality amongst children of tender years, an age which would not enter largely in the lists of the immigrants referred to, who for the most part are persons at more advanced periods of life. Upon referring to the above table, it will be seen that the number of deaths under twelve months of age in the seven years is 598, being nearly a quarter of the births, and 24 per cent. of the whole number of deaths; and that the deaths under five years of age are 44 per cent. of the whole mortality.

The deaths from epidemic, endemic, and contagious diseases, appear to be at the rate of 58 per annum; or, supposing the population to be 12,000, one in every 206 inhabitants. In the last year of the return the deaths from these causes much exceed this average, being at the rate of 106 in each year, or one in every 113 inhabitants in 1848.

Finally, the mortality of Cardiff for the seven years, 1842—8,

amounts to 2,532, giving an average of 362 per annum; which, supposing the average population of the period to have been 12,000, —a very extreme number—would be at the rate of 30 to every 1,000 of the population.

GOVERNMENT.—*Municipality.*—Cardiff received a charter of incorporation either from Iestyn ab Gwrgan, the last of the native sovereigns of Glamorgan, or from the first of its Norman lords. The oldest charter extant is one of Hugh le Despencer, in the reign of Edward III., dated October 14, 1388, and confirming the grants and privileges of his predecessors, Lord William de la Zouch and Elinor his wife. Subsequently, various charters have been granted by successive sovereigns; those of the 42nd Elizabeth and 6th James I. having been the governing charters until the passing of the Municipal Corporations Act. A further charter was granted by James II., but does not appear to have been acted upon.

By the Act of the 5th and 6th Wm. IV., the corporation is styled the "Mayor, Aldermen, and Burgesses," and consists of a mayor, six aldermen, and eighteen councillors, forming the council of the borough, which is divided into two wards, and of which the municipal and parliamentary boundaries are the same. The aldermen and councillors must possess a property qualification of 500*l.*, or be rated at 15*l.* annual value. The burgesses are the occupiers of houses and shops rated for three years to the relief of the poor, of resident householders within seven miles; and a valid title to be a burgess is acquirable by descent, marriage, marriage settlement, devise, or promotion to any benefit or office, in which case the occupancy and payment of rates by the predecessor may be reckoned.

Local Acts.—Cardiff had a local Act for paving, lighting, &c., as early as the year 1774 (14 Geo. III., c. 7). This was repealed in 1837, when the existing local Act (7 Will. IV.) was passed. This Act vests the government of the local affairs of the town in a body of Commissioners, of whom all resident justices of the peace, the constable of the castle, the mayor, aldermen, and town-clerk for the time being, are *ex-officio* members, together with 50 other persons named in the Act. Upon any vacancies occurring by death, or refusal or neglect to act for two years, the Act empowers "the remaining Commissioners from time to time, whenever they shall think proper, to nominate and appoint another fit person in the place or stead of every such Commissioner so dying, or refusing or neglecting to act." The Commission, in other words, is self-elective. As to meetings, it is provided that five shall be a quorum, and that they shall not have power to adjourn for a longer period than a month; but that two Commissioners shall be sufficient for the purpose of adjourning.

The powers granted are quite as great as those usually found in such enactments; but, as is often the case, many of them are

very discretionary. It will be seen, in the course of this Report, how far the Commissioners have exercised the powers so vested in them. With regard to rating, the Commissioners are empowered to raise a rate of 3*s.* in the pound upon all property except wharfs, and 1*s.* in the pound upon wharfs, or with the consent of the rate-payers in meeting assembled of 4*s.* in the pound upon the former, and 1*s.* 4*d.* in the pound upon the latter. They are also empowered to raise loans, by way of mortgage upon the rates, to the extent of 7,000*l.* Under the last provision, they have already raised 2,550*l.*, leaving a power of further borrowing to the extent of 4,450*l.*

The jurisdiction of the Commissioners, for the purpose of rating, extends throughout the Borough, (the boundary of which, as before stated, consists of those of the two parishes of St. John and St. Mary,) to any property within 100 yards of any public lamp.

With respect to the proceedings of the Commissioners, it appears from the statement of Mr. Thos. Watkins, their clerk, that eight months previous to this inquiry the number of Commissioners had been reduced as low as 37, but that 14 new Commissioners had since been appointed. The meetings most commonly take place on the last Tuesday in each month. During the last two years there had been 14 monthly meetings which had not been attended by a quorum, but all these, with the exception of one, had been subsequently held by an adjournment for a week. The following return, put in by Mr. Watkins, gives further information upon this point:—

"Number of meetings held from 15th July, 1847, to 30th June, 1849	27
"Average attendance at each meeting . . .	13
"Number of adjourned meetings at which no business was transacted, within the same period . .	13
"Average attendance at such adjourned meetings .	29¼."

Paving, &c.—I have already mentioned the remark made by Mr. G. Clinton, that new houses are built without any regard to level or uniformity, and that the Commissioners have no power to compel attention to such points. The ill-consequence, as regards paving and draining, of this inconsiderate mode of procedure is dwelt upon by Mr. Clinton in the following observations:—

"The want of uniformity in the level of the houses seriously affects the paving of the streets, and in many streets where new paving has been put down by the Commissioners, the floors of the houses are below the level of the surface. Bute-street, which is built on a slightly rising ground, is neither pitched nor paved as yet. In this street are several steps, both up and down, solely from inattention to levels, and when a uniform pavement is laid down, the floors of some of the houses must be beneath the surface. It will puzzle any one to do this street, because the two sides are not alike, any more than the level of the length. The

surface-water sometimes runs into the rooms of these houses, but this is not the case where the streets have been pitched and paved by the Commissioners."

Another difficulty, in regard to pitching and paving in newly-built quarters, arises out of the wording of the Act, which whilst it empowers the Commissioners to oblige the proprietors of such houses to pave opposite them as far the middle of the carriage-way, makes no like provision for the opposite sides, or intermediate spaces in streets, or intended streets, where not built upon. It has, therefore, "been a rule with the Commissioners not to enforce this clause till both sides of the street are built upon." There are several streets in this predicament, and consequently, not pitched or paved. Part of Stanley-street is pitched, but it is not completed, from this cause. There is also a gap of 80 feet in Charlotte-street not pitched. "The streets not pitched or paved pay all rates, in the same proportion as if they were pitched and paved."

Mr. J. Emerson Williams complains, that the streets or road-way in front of Nelson-terrace and Charles-street; two of the most respectable in the town have foot-pavements, but neither pitching nor metalling in the carriage-way, and that they are frequently, in winter, impassable for carriages, from the mud lodging on the surface. He says:—

"I have known them as public thoroughfares for about six years. I pay street-rates in the same proportion as the inhabitants of the streets which are pitched and paved."

With regard to Stanley-street, a street previously mentioned, and which contains 21 or 22 houses, fully inhabited, it was stated by Mr. William Stanley that a part of it only had been pitched within the last two months.

In Newtown, where there are now about 100 houses, and an increasing neighbourhood, there is some foot-pavement, but no pitching.

The accompanying plan of the town distinguishes those streets which are pitched from those which are not.

Of the pitching and paving of the older streets of the town, Mr. G. Clinton states:—

"It is, generally, not good. Church-street is the worst in this respect. The pitching is formed of pebbles taken from the bed of the river, which the Act gives power to do. The pebbles are laid about 5 inches deep, and I find it best to set them in a foundation of gravel in preference to sand. The work is always done by contract, and the usual price is 1*s.* 4*d.* per superficial yard. The price for taking up old pavement and re-laying, is 1*s.* per yard.

"The foot-pavement is formed of flag-stone, brought from Newbridge. The price of this, laid, is 3*s.* 6*d.* a-yard. The flags, of good quality, 2½ inches thick, are delivered at 3*s.* a-yard.

"We generally use Irish lime-stone, brought here in ballast, for the Macadamized roads. The usual cost of this is 4*s.* a-yard, broken and delivered."

Scavenging and Watering the Streets.—Mr. G. Clinton, upon these points, states :—

"All streets dedicated to the public are regularly watered and scavengered. This work is done by contract. There is no yard for the reception of the scrapings, but they are usually carted to an open space in Newtown or Long Cross Common."

He adds, that there are "a great many streets in the town neither pitched nor paved;" and that these are neither repaired, watered, nor scavengered by the Commissioners. When such a street is in a very bad state, the magistrates sometimes give an order for its repair by the surveyor of highways, which is done at the expense of the parish.

Apportionment of Expenses.—The Act provides that all works of public drainage are to be paid for out of the general rate, but that the pitching and paving of new streets is to be done at the expense of the proprietors of the houses. A return of the money expended in pitching, paving, draining, &c., 10 streets, viz.—Caroline-street, Trinity-street, Wharton-street, Mary Ann-street, Bridge-street, Union-street, Millicent-street, Charlotte-street, Ebenezer-street, and Frederick-street, up to July, 1846, shows a total expenditure of 3,244*l.* 2*s.* 3*d.*, whereof 2,056*l.* 18*s.* 2*d.* was paid by the proprietors, and 1,187*l.* 4*s.* 1*d.* by the Commissioners; by the ground-landlords, *nil.* It appears further from this return, that Little Frederick-street was pitched and paved entirely at the expense of the proprietors, with the exception of a contribution of 8*l.* 3*s.* 7*d.* from the Commissioners.

The total expenditure upon the repairs, scraping, watering, &c., of the streets, for the last five years, paid by the Commissioners, has been, from the 1st of July to the 30th of June,—

	£.	*s.*	*d.*
1844–5 . .	167	14	7
1845–6 . .	221	14	10
1846–7 . .	277	5	2
1847–8 . .	346	13	2
1848–9 . .	546	7	1

Lighting.—An Act was passed in 1837, for the formation of a gas and coke company in Cardiff, with a capital of 10,000*l.*, with power of increase as far as 20,000*l.* The capital already expended is about 13,000*l.*, of which 2,000*l.* has been taken up in debentures. The works were first opened in 1840.

The annual charge to the Commissioners for the public lights, the company lighting and extinguishing, is 2*l.* 19*s.* 6*d.* per lamp. The charge to private consumers is 6*s.* and 7*s.* per 1,000 cubic feet. Coal is delivered here at from 7*s.* 6*d.* to 9*s.* per ton.

Mr. C. C. Williams, chairman to the company, says:—

"I am not aware of any street which has been finished a twelvemonth in which our mains are not laid down. In Newtown, now in course of building, on a petition from the inhabitants, a main has been already laid down."

On the other hand, Mr. William Stanley said:—"I think the public lighting in the town is not fairly and equally distributed;" and he adduced several instances in support of the remark, amongst others, Charles-street, which had remained unlighted for several years after it was built, though rated all the while;—Stanley-street, which has no gas-lamp;—and Newtown, which has only two or three lamps.

I will not make any observations upon these complaints, further than to observe, that many parts of the town appeared to me to be insufficiently lighted.

Market.—An Act was passed in 1835 for the construction of a new market-house and place, and of a slaughter-house. These were built by and are vested in the Corporation. The market-days are Wednesdays and Saturdays.

The slaughter-house is situated near Quay-street, in a confined district, houses being close to it upon the north and east sides, and they are only the width of the street from it on the south side. Several witnesses complained of its being inconvenient in its arrangements, and insufficiently cleansed and supplied with water. Mr. G. Bond, who has been in business as a butcher in Cardiff for 10 years, says, for the reasons stated,—

"I have long ceased to slaughter beasts in it. I have known many robberies committed in it, portions of the carcases having frequently been carried away. There is much fighting and drunkenness going on there. I am aware that I am open to a fine for not slaughtering there. I have once been fined 5*l.*, but I still refuse to slaughter there. Meat slaughtered there will not keep. I have heard Dr. Lewis, when mayor, say, that he would not purchase meat slaughtered in that place. I do not object to kill in the public slaughter-house on account of the fees. I think a well-arranged and well-conducted public slaughter-house in the neighbourhood of the town would be a convenience to the majority of butchers."

Mary Ann Yorath, dress-maker, says—

"I live in Quay-street, 46 yards from the public slaughter-house. I come to complain of the stench proceeding from the slaughter-house, which is so bad that I am obliged to close the doors and windows of my house. Many ladies are prevented from coming to my house in consequence. I employ four young women from London, who told me yesterday that if the stench continued they must leave, they having complained of their health suffering. The stench is much worse on the principal killing-day—Thursday. From April to October, that is, in the veal season, the lowing of the calves is so loud on certain nights that I cannot sleep. They kill on Sundays as well as on other days. I have

heard much dissatisfaction expressed by people living in that part of the town as to the position of the slaughter-house. I think it ought to be removed far away from the houses. There have been two deaths from cholera in a house within six yards of the slaughter-house, and there was another case in a house opposite."

Highways.—The length of highways under the Trustees of the South Wales Turnpike Trust Act, 11 and 12 Vict., c. 91, is—within the parish of St. John's about two miles and three-quarters; in the parish of St. Mary about three miles: total, five miles and three-quarters. The principal streets repaired in the town by the surveyor of highways are part of Whitmore-row and Bute-street, to Bute Docks, about a mile and a-half in length.

The average expenditure for the highways in the two parishes for the last three years amounts to 279*l.* 2*s.* 7*d.* per annum. It is stated in the return of Mr. B. Bowen, Surveyor of Highways, that—

"In consequence of the great and heavy traffic carried on between the town and Bute Docks, a great outlay is caused in keeping the roads in repair."

In general the materials used for the repairs of the highways is ballast lime-stone from Cork and Waterford, from its being found cheaper and more durable than the stone of this neighbourhood.

Drainage.—It will be gathered from what has already been stated, that Cardiff is not advantageously situated for purposes of draining; the highest point of the town at the Town-hall being only 10 feet above ordinary high-water level, whilst all the portions intervening between it and the Bristol Channel decline gradually, some parts of the neighbouring site being below the level of spring tides. It would require an application of scientific principles, uniformly and efficiently carried out, to overcome such natural difficulties, but these do not appear to have been applied, and Cardiff, for all that relates to refuse drainage, has been left completely to its fate, unassisted by the commonest aids of science or prudence. The consequence is what only could be looked for under such circumstances, floods, swamps, filth, miasma, ague, and other disorders, in fearful abundance.

Mr. G. Clinton says—

"There is no system of sewerage for the refuse drainage of the town, but there are drains to convey away the surface-water and the greater part of the house-slops."

The two main outfalls of these drains are into the Bristol Channel, one on the east side of the Bute Docks, and the other on the west side, into the Packet Slip. Both these outfalls are furnished with flood-gates, which are closed at high-water spring tides, but open at other times, being above the ordinary high-tide level. That on the east side is an open ditch from the shore to near Newtown, that on the west side is open for about 1500 feet

below St. Mary's Church, but from this part it is covered to the outfall. It is nearly a dead level.

There are also four outfalls on the west side of the town into the river Taff, and one into the overflow of the canal. These are all from covered drains. Mr. G. Clinton says—

"Nearly all these drains have been constructed since I have been in office. They have parallel walls, with a flag bottom, inclined from the sides to the centre. The smaller ones are flat, but the larger ones are arched at the top. They vary in size from 3 feet high by 1 foot 9 in. wide, to 2 feet high by 1 foot 3 in. wide. There is deposit in all of them, not one has a sufficient current through it to keep it clean. There is about six inches of deposit in most of them, but the deposit is kept under by a system of catch-pits at every grating. These pits are usually cleaned out every month or six weeks. If it were not for these catch-pits, the whole system of drainage would quickly become choaked with deposit."

In other words, the existing drains in Cardiff are not drains in the ordinary and practical sense of the word, namely a channel through which drainage is carried off; but a succession of pits connected by a covered way, in which the deposit accumulates until it is removed by means of manual labour.

Mr. G. Clinton adds—

"The only sewer which can be considered at all an efficient one is in Mary Ann-street. The top of this is six feet beneath the surface, most of the others are only three or four feet from the surface. The levels of the bottoms of these drains are, in nearly all cases, above the level of the floors of the cellars of the houses, so that no drainage from the cellars can pass into them. Privies are not allowed to communicate with them; they are intended solely for the surface-water and the house-slops. Some parties in Mary Ann-street have been allowed to communicate with the Commissioners' drain upon the condition that the privy-soil is not passed through their drains. Mr. Wm. Stanley has twice established a communication between the privies of his houses in Stanley-street and this drain, but it has been each time cut off by the Commissioners."

Of the proceedings in the case of Stanley-street and Mary Ann-street, Mr. Stanley, the proprietor of some of the houses, puts in a complaint, of which the following extract will be sufficient to explain the nature of the disagreement between him and the Commissioners:—

"I will explain how the circumstances arose of which I have to com plain. About 11 or 12 years ago, I bought two houses in Mary Ann street, and contracted to build four others, with proper drains into the street. The street was afterwards pitched by the Commissioners, and was raised 2 feet above the previous level, which raised the street on a level with the floor of five houses and above the level of one house, and thus the water was by the act of the Commissioners thrown back on m premises.

"I remonstrated; but without effect. I then, for my own protection, made a drain into the public drain under Mary Ann-street; after it was made 12 months, the Commissioners stopped up the communication with their drain. I complained again; but without redress. I afterwards secretly made another opening into their drain, which was also stopped up when they discovered it. The Commissioners, having thus by their own act thrown back the surface-water into my premises, would not allow the only means of keeping them dry, namely, to communicate with their drain in Mary Ann-street.

"I was, consequently, compelled to make another drain in Stanley-street, falling into Lord Bute's drain in Whitmore-lane, and this drain, owing to the outfall being too high by 9 inches, throws back the water to the depth of 9 inches into the back premises of Stanley-street; thus always leaving a deposit of foul matter to the injury of the health of the inhabitants of that street.

"The reasons given by the Commissioners for refusing me permission to drain into their drain in Mary Ann-street is, that I ought to pay towards it. The Commissioners charged me with a part of the cost, which I refused to pay because I am not liable to do so, nor are the Commissioners empowered to charge it. They then say, if you will not pay towards the cost of the drain, you shall not have the use of it; though by their first raising the street, they it was who injured the drainage of my premises, which were properly drained before."

Mr. Stanley, in addition to his written statement, says—

"The drain I have made I now ask the Commissioners to pay for; I ask this because the Commissioners have put three gratings into it to take off the surface-water."

To go a little further into the history of this dispute, as it involves the greater portion of the drainage works done under the superintendence of the Commissioners. It appears that in 1839 Mary Ann-street, Bridge-street, Union-street, and Millicent-street, were pitched, paved, and drained, and the Commissioners attempted to charge the whole expense of these works upon the respective proprietors of the houses. This was resisted by Mr. Stanley and others, and eventually the proprietors paid only that portion of the expense which related to the pitching and paving, a result which appears to be strictly in accordance with the tenor of the Act. The total cost of the works in these four streets was 2,037*l.* 19*s.* 7*d.*, whereof the proprietors paid 1,099*l.* 14*s.*, and the Commissioners 938*l.* 5*s.* 1*d.* Whether the Commissioners were deterred by the amount of this expenditure from undertaking works of the like kind in future, I will not pretend to judge; certain it is, that by the following return (see p. 23) put in by Mr. Clinton, which comes down to July, 1846, there appears only to have been four streets paved or drained under the superintendence of the Commissioners since the year 1839, namely, Charlotte-street, Ebenezer-street, Frederick-street, and Little Frederick-street, and of these the cost of Charlotte-street, 148*l.* 19*s.* 8*d.*, including 41*l.* 19*s.* 8*d.* for paving, was wholly paid by the proprietors.

An Abstract of the Expenditure and Receipts of Pitching, Paving, &c., of the undermentioned Streets, Town of Cardiff, up to July, 1846.

STREETS.	EXPENDITURE.																RECEIPTS.											
	Pitching.			Paving.			Curbs.			Drains, Cesspools, Gratings, &c.			Crossings, Steps.			Culverts.			Total.			Proprietors.			Commissioners.			Ground Landlord.			Total.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.
Caroline .	72	10	0	54	3	9	17	5	0	12	2	9	4	8	2	70	15	3	231	4	11	158	15	7	72	9	4	..			231	4	11
Trinity. .	138	1	4	64	15	11	16	9	10	15	6	0	4	19	7	51	8	6	291	0	2	210	16	6	80	13	8	..			291	0	2
Wharton .	54	2	6	47	6	10	13	2	6	4	8	0	3	5	11	..			122	5	9	107	2	5	15	3	4	..			122	5	9
Mary Ann.	156	0	0	63	16	10	28	7	4	35	9	3	7	15	5	264	1	6	555	10	4	238	15	9	316	14	7	..			555	10	4
Bridge. .	187	0	0	92	14	1	30	7	6	38	14	1	19	16	6	130	12	11	499	5	2	289	8	8	209	16	6	..			499	5	2
Union . .	154	15	0	94	6	3	30	12	0	41	7	11	15	7	4	189	3	0	525	11	6	274	15	6	250	16	0	..			525	11	6
Millicent .	168	12	5	92	18	4	39	9	5	34	4	8	18	10	8	101	15	9	457	12	7	296	14	1	160	18	6	..			457	12	7
Charlotte .	42	3	4	41	17	0	16	14	0	15	1	0	6	4	8	26	18	8	148	19	8	148	19	8	..			..			148	19	8
Ebenezer .	29	10	8	25	6	2	12	4	1	3	6	6	11	2	10	..			81	11	8	64	15	0	16	16	11	..			81	11	0
Frederick .	225	17	4	46	7	4	13	18	6	10	11	2	18	0	3	16	15	8	331	0	3	275	8	7	55	11	8	..			331	0	3
Little Frederick, done by the proprietors themselves																..			..			..			8	3	7	..			..		
Total																			3,244	2	3	2,056	18	2	1,187	4	1	..			3,244	2	3

Little Frederick-street was also done at the expense of the proprietors, with the exception of 8*l.* 3*s.* 7*d.* paid by the Commissioners. Of the expense in Ebenezer-street, amounting to 81*l.* 11*s.* 8*d.*, 64*l.* 15*s.* was paid by the proprietors, and 16*l.* 16*s.* 11*d.* by the Commissioners; of the expenses in Frederick-street, amounting to 331*l.*, the proprietors paid 275*l.* 8*s.* 7*d.*, and the Commissioners 55*l.* 11*s.* 8*d.*; making a total outlay for purposes of draining made by the Commissioners in seven years of 80*l.* 12*s.* 2*d.*

The whole amount of expenses for such purposes paid by the Commissioners up to July, 1846, is 1,187*l.* 4*s.* 1*d.*, and nothing appears to have been done since by them in this way, if we may judge by the evidence of Mr. Clinton, the surveyor, who says—

"Since I have been in office (11 years in July, 1849), the Commissioners have expended in all 1,171*l.* in the construction of drains, and these have been paid for from the general rates."

To return, however, to the present state of the drainage, with a view to the application of an efficient system of refuse drainage. Upon this point the evidence of Mr. Clinton is at once conclusive and little encouraging; he states:—

"The present drains throughout the town would be almost entirely useless in any future system of refuse-drainage. Perhaps the drains of two or three streets might be worked into such a system."

The lower and newer part of the town is the worst managed in regard to drainage, as well as in the character of the houses:—

"All the sewers in the lower part of the town," says Mr. Clinton, "were constructed by the late Lord Bute, being on his property, without reference to the levels of the Commissioners' sewers. The sewer near St. Mary's church is two feet below the level of what ought to be its out-fall, viz., the main ditch before spoken of, but I believe this is mainly due to the deposit in the ditch. I have no plan showing the levels of all the sewers which have been put in by the Commissioners, and I believe that Lord Bute's agents have no such plan of their sewers. I lately made application to them for such a plan, but could not obtain one. I have seen the workmen exploring for a sewer into which they might pass the drainage of the warehouse now erecting near the head of the dock. I want now to open the main sewer near Newtown, which is nearly filled with deposit, but am ignorant of the direction of the lower part of it. I might hunt after it for two or three days, digging down and not find it."

With regard to the level of Lord Bute's sewers not corresponding with those of the Commissioners, it seems difficult to conceive that so inconvenient an arrangement could have taken place with the knowledge of the Commissioners, supposing it to have been intended that such sewers should at any time be opened into any of the Commissioners' sewers, there being a clause in their local Act which expressly provides that "all private drains which now do, or which by permission of the said Commissioners hereafter shall

issue into any of the said public sewers, drains, vaults, culverts, or water-courses, shall be *made,* repaired, and cleaned, by or under the inspection and direction of, and *according to such plan* as shall be approved of by the proper officer of the said Commissioners, at the cost and charge of the owner and occupiers, &c."

One more passage from Mr. Clinton's evidence, and then I shall proceed to statements made by other witnesses upon the subject of drainage. The following exhibits in a strong point of view, the want of attention with which the matter has been treated in the midst of the excitement and bustle attending larger and more profitable undertakings.

"On the east side of the Bute Dock, there was an open ditch to convey the drainage of that part, the eastern part of the town, through 'the moors' to the sea. Either Lord Bute's people, or the workmen of the Taff Vale Railway, have filled this ditch up with the ballast from vessels, without providing any other. The sewage water now spreads over a large surface of pits [pits already referred to, which have been made by digging for brick-making], and the matter in suspension deposited in them; so that a large evaporating surface of offensive matter is now exposed."

In proof of the unhealthy nature of the exhalations prevailing in this part of the town from the above causes, I received a few days after my return to town, a communication from Mr. G. Smart, who resides near the Bute Docks, containing the following painful particulars. The letter is dated the 27th July, 1849, and contains the following passages:—

"Sir,—During the time you were at Cardiff, I lost my wife and one of my children, of cholera, brought on, I believe, from the bad state of the neighbourhood of the Bute Docks, in which I reside. You remember my calling on you at the 'Angel,' late one evening, to inform you of my intention to have an inquest on the body of my son, with a view of having the state of our drainage brought publicly forward, trusting it would lead to a remedy. The inquest was held, but from a promise made me by the Sanitary Committee to remove the matters complained of, I did not bring forward the evidence I intended and should have done. The verdict of the jury was, however, that he 'died of cholera brought on by the bad state of the drainage in the neighbourhood of the Bute Docks.'"

The writer, after some other observations, says:—

"I called your attention also, at the Town-hall, to the drain called the gas-works drain, believing that many of the deaths resulted from the state of that drain. It is true the authorities have had 10 men employed for the last fortnight in covering up and draining off that stagnant matter, thus doing us some good; but they inform me that the other and principal nuisance we complain of, viz., the stagnant ponds of water between the Glamorganshire Canal and the Bute-road, cannot be remedied, owing to the Glamorganshire Canal Company refusing to have their ballast discharged there."

Mr. G. Bond, butcher, living in Bute-street, says:—

"The drain from Whitmore-lane overflowed the last heavy rain, and flooded my underground kitchen and cellar. There was 20 inches deep of water in them, of the most offensive kind. We did not get rid of the water for five or six days. It was common sewage water. Three other houses were similarly inundated, and four others partially so."

But the neighbourhood of the Bute-Docks and Stanley-street, though very badly off, are not the only places where inefficient drainage, or a total absence of it, are much complained of. There are large open drains in some parts of the town, some of them quite stagnant. In David-street there is such a drain, which is now filled up, and is very offensive.

Landore-court, Kenton's-court, and a score of others thickly crowded, in the very heart of the town, are utterly without drainage. Further particulars of the condition of these places will be found under the head "Dwellings of the Poor."

Mr. Wm. Davies, keeping the "Rose and Crown," in North-street, states that his yard is very low, and that he is much annoyed during wet weather by the filtering water, which during heavy rains flows in from the adjoining premises; he says:—

"They have no drains to carry it away, and I am obliged to remove it in buckets, to the great annoyance of my neighbours, as the water is very offensive. There is a dunghill behind my premises, on which all manner of filth is thrown in the night, and this, in wet weather, is washed into my yard."

Mr. William Lewis, living in Smith-street, puts in a written paper, in which among other matters he states:—

"I beg to lead your attention to the north side of this street, which property belongs to the Corporation and members of the Street Commissioners, which lies between Smith-street and Queen-street. The houses are let out for stables, hay-stores, and coffin-shops. The part adjoining the east end is inhabited by human beings without proper ventilation, necessaries, or conveniences for their use; scarcely a morning passes by, but we find filth of the worst description thrown out by those poor wretches, and deposited at the upper end of this building, facing the weighing-machine and public pump, and there left to the public gaze for a fortnight or three weeks together. All this abuse has been allowed to exist by our inattentive and inefficient Street Commissioners. I and many others of my neighbours have frequently called their attention to this creeping evil, but to no effect, until the voice of the epidemic that now unfortunately exists among us, and has swept away many of our valuable fellow-townsmen, has roused them from their apathy to the adoption of temporary measures of relief; but alas, too late for many."

Mr. Morgan Thomas, druggist, living at the corner of High-street and Duke-street, says:—

"I find that the slops of 16 houses in Duke-street run along the

open gutter to one of the gratings opposite my door. One of these is a brewery, to one a currier's yard is attached, where the manufacturing is carried on. In High-street, there are nine houses which drain into the other grating. One of these is a chandler's shop, and from this I have seen slops discharged, so foul, that one could scarcely stand over it. At night, I sometimes go to the shop-door with the intention of getting a mouthful of fresh air, but such is frequently the stench from the gratings, that I am compelled to retire for fear of having the cholera, or some other disease."

Mr. B. Peddrazzini, general dealer, living at the corner of Queen-street, makes a similar complaint of a grating opposite his door; he says that the inhabitants of many of the houses in the neighbourhood, having no privies or backlets, come and empty their chamber-pots into this grating, and that the scavengers, when they come round, usually sweep the stuff into the drain.

Mr. R. J. Yorath, painter, complains of people emptying their night-soil on the Old Quay, not more than 30 yards from his house; the stuff lies there till washed away by the high tides. He states that "his part of the town is in an abominable state."

Many other witnesses speak to a similar state of things in other parts of the town; but it is unnecessary to repeat their evidence here.

In connexion with this peculiar class of nuisances, it may be mentioned that the Commissioners' Act specially enacts that "no person shall unload, cast, or spill, &c., any night-soil out of any cart, tub, or otherwise, in any street, lane, or other passage or place within the same town," under a penalty of 5*l.*; yet such night-soil is, and has been commonly cast into the streets, in almost every part of the town, though more in the poor and crowded districts than others.

It appears that previous to my visit the Commissioners had already advertised for plans for a general system of sewerage for the town, and I was informed that in consequence of that advertisement, 13 designs had been sent in; and further, that these designs had been forwarded to London, in order that in selecting from them, the judgment of the Commissioners might be aided by the professional opinion of Mr. Cubitt, who had considerable knowledge of the place, having been concerned in the construction of the Bute Docks. I am still uninformed as to that gentleman's views on the subject.

To this matter, Mr. R. Lewis Reece, coroner, refers in his letter to your Honourable Board, dated 1st June, 1849.

"In November last, when the sanitary agitation first commenced here, the Street Commissioners, in order to prevent a petition to the General Board of Health being transmitted from this town, professed their intention to take effectual steps for carrying out a proper system of drainage. They advertised for designs for that purpose; the designs were sent in on the 13th of February last; but owing to difference of opinion and views amongst the Commissioners, no decision as to the design to

be adopted has yet been made. The plans are now in London, for the purpose of being decided on by a London engineer. To this I objected (with other Street Commissioners); I considered that the opinion of an engineer who should visit the spot and examine the locality would be preferable. It was, however, decided to refer them to London. No selection has yet been made, I believe."

Privy Accommodation.—The Commissioners' Act contains a clause which runs as follows:—

"And be it further enacted, that the proprietor or owner of all messuages, cottages, or other tenements, occupied by several distinct tenants within the said town, shall, and he is hereby required, where no sufficient necessary-houses or privies are attached, to provide and keep in good repair such and so many necessary houses or privies, with such proper doors and coverings to the same, as the said Commissioners shall consider requisite for the use of the tenants or occupiers thereof; and if such proprietor or owner shall not provide and keep in repair such necessary-houses or privies, with such doors and coverings to the same, within twenty-one days next after notice in writing for that purpose, from the clerk or surveyor of the said Commissioners given to such proprietor, or left at his usual place of abode or dwelling, then and in every such case every such proprietor or owner making default shall forfeit and pay any sum, not exceeding twenty shillings, for every such necessary-house or privy, and door and covering to the same, which shall not be so provided and kept in repair, and any further sum not exceeding five shillings for every week during which such necessary-house or privy, or such door or covering to the same, shall not be provided after the expiration of such notice."

This is a provision, which, if acted upon in the spirit in which it was drawn, would undoubtedly have been of very considerable value, in a town thickly covered with houses of the poorest description. It does not appear, however, that the Commissioners have ever called it into operation; at least, if they have ever exercised the discretion and authority vested in them, there are few traces of the fact.

Mr. Stanley states that, "in most parts of the town it is not the rule to allow the communication of water-closets with sewers;" he mentions the general want of privy accommodation, and the obnoxious appearance of the street gratings which is the inevitable consequence. "Near my house," he says, "there are eight or nine houses having no privies, but there are hundreds in the town without any. These people go of a night any where they can."

In John-street and Duke-street, the privy accommodation is abominable. Mr. Stanley refers to seven or eight houses in these streets, one of which has a privy in an underground kitchen, the other in a cellar; the rent of the former house is 50*l.* a-year. The other houses have no privy at all. The privy in the cellar is "so bad that it cannot be used, there is no draught to take the foul air off. It has been full this twelvemonth. I can't say where they

go to, but they carry the matter to the grating of the drain." He adds ;—

"Queen-street is in a very bad state. There is a butcher, named Grey, living in a house without any accommodation. There are two houses adjoining belonging to the Corporation, without any convenience at all. There is also one at the end without privy. In Waterloo-buildings, in the Hayes, there are 11 or 12 houses with two privies; one privy I saw this morning was full up to the seat-board, and the other three parts from the ground up to the seat-board; there was straw laid on the ground, and the privy full of filth."

In Whitmore-lane and Stanley-street, which neighbourhood has been the chief seat of typhus fever and cholera, Mr. James Lewis, the medical officer of the district, says the privy accommodation is very insufficient, and he attributed to this cause, together with the want of good water, the unhealthiness which prevails there. Stanley-street is provided with privies, but most of them are located in small rooms or outhouses opening out from the front and only living room, without back window or ventilation of any kind, and are all without doors or covering.

In Landore-court, previously referred to, where there are 21 houses, occupied by "nearly 500 individuals," there are four public privies, open and without covering, and it is needless to add in a most filthy state.

As many particulars relating to this point, in connexion with these wretched abodes, will be found under the head of "Dwellings of the Poor," I shall not further enter upon it at present.

Water Supply.—The public supply of water for washing, cleaning, and ordinary domestic purposes, is obtained from the canal, the River Taff, or from a few pumps in different parts of the town, some of which are fed from the canal, and others by means of wells sunk through the gravel and marl strata, upon which the upper part of the town is situated. The supply, however, appears to be insufficient and uncertain, obtained at considerable inconvenience and labour by the inhabitants, and the quality generally much deteriorated by the filtrations necessarily taking place in an ill-drained soil.

Water is obtained at 18 or 20 feet depth, but at 25 or 30 feet it is very abundant. Still, even at this depth, the canal appears sometimes to affect the supply. Mr. G. Clinton says :—

"I never knew any of the deep wells dry, excepting the public pump in Crockherbtown, which from some cause or other, which I cannot account for, is affected by the canal. This well was dry when the water of the canal was out."

There are private pumps in some of the houses, but in many instances the water from them is so affected by leakage from neighbouring cesspools, and by the general surface drainage percolating through the gravelly soil of the upper part of the town, that

it cannot be used for drinking. Upon this point, Mr. G. Clinton gives the following general evidence:—

"The water of the deep wells is invariably good, excepting when it is affected by the drainage of the cesspools. In the neighbourhood bordering upon Whitmore-lane, the wells are all more or less affected from this cause. I do not think there is a single well of pure water in that part of the town. This applies, more or less, to all parts of the town which are thickly populated, and where cesspools are numerous."

Mr. James Lewis says that the supply of water is deficient in quantity, and that there is much want of proper facilities for obtaining it. "I consider the number of public pumps in the town insufficient." In Whitmore-lane there are two pumps, one supplied from the feeder, the other from the canal. "I have known a scarcity of water in that part of the town in dry summers. I have known the canal being out in dry summers affect the springs generally, for a short period."

Mr. Stanley says:—

"I have sunk three wells, two in Mary Ann-street, and one in Stanley-street; the well water stinks; it could not be used for culinary purposes. Mary Ann-street and David-street are densely populated; there is only one pump there, belonging to the chapel; the water comes from Lord Bute's feeder. It is used for drinking and other domestic purposes; it is not the best of water, I have seen worms in it; the people clamber over the wall for this water, it is like a struggle for life and death."

Mr. J. Emerson Williams, living in Nelson-terrace, says:—

"My family draw a plentiful supply of water from a pump which is attached to the house. The water is frequently found to contain small white worms, and is sometimes otherwise disagreeable."

Mr. Morgan Thomas, druggist, gives evidence in further illustration of the extent to which private pumps are contaminated by the drainage from cesspols on the same premises, or from the town generally. Mr. Thomas lives at the corner of High-street and Duke-street, he states:—

"The rental of my house is 42*l.* a year. I have a water-closet upstairs, which empties itself into a cesspool. The cesspool is beneath an underground kitchen. I have been there two years, and have not yet had occasion to empty the cesspool; there is a pump in the kitchen as well. The well is about 3 yards from the cesspool, and about 20 feet deep. I never drink the water of this well, but procure a supply from the public pump in Crockherbtown, about 150 yards from my house. We use the water in the well in the kitchen for cleaning the house. The inmates of the house opposite mine procure their supply of water also from the public pump."

Mr. Henry Place, shoemaker, states:—

"I formerly lived in Great Frederick-street for three years and a-half. There was a pump in my house, but during the whole of that time I

never could make use of the water for drinking; there were worms in it, and it was affected by the drainage from the privies."

A memorial, signed by 20 inhabitants of Union-street and Frederick-street, was sent in in the course of the inquiry, in which the memorialists state that—

"While the town is surrounded with water of good quality, there is scarcely a drop in the above-named streets can be made available for domestic purposes, in consequence of the inefficiency of the back drains, cesspools, and other nuisances, and their being in such close proximity to the wells from which the water is obtained."

In the public slaughter-house there is great complaint of the deficient supply and bad quality of water. Mr. G. Bond says, "there are four pumps in it, but I have known three to be dry for days together, and the water in the fourth to be stinking."

By referring to the map for the localities indicated in the various statements above given upon this subject, some idea may be formed of the general nature of the complaint upon the score of water supply, both as regards quantity and quality in Cardiff. Of "the public pump" in Crockherbtown, which is sent to from far and near, it now remains to say a little, to show how inadequate are its resources to supply the large demands made upon it. Mr. H. Place, a witness recently referred to, and who now lives in Crockherbtown, says:—

"I have now the care of this pump; when the water is sufficient the pump is not locked up at night, but when it begins to fail I lock it up. It was quite dry the night before last, and I locked it up. It got dry at 5 this evening, and I have now locked it up. During the prevalence of dry weather, as at present, I generally find that the pump gets dry towards the evening. The Crockherbtown pump is considered to give the best water. I should say, upon a rough calculation, that from 200 to 300 persons supply themselves here, the pump is rarely idle. I have known people come to this pump from the further end of Bridge-street, this would be nearly half-a-mile.

"It is quite common for people occupying houses of 8*l.* or 10*l.* rental, to pay persons 6*d.* or 7*d.* a-week for the labour of fetching water from this pump. The usual quantity is two pail fulls a-day each. But this will not nearly suffice for all the household purposes."

The following table exhibits the degrees of hardness, the result of examination by Dr. Lyon Playfair, of the waters obtained from some of the principal sources, public and private, many of which have been mentioned in the previous evidence. It will be seen that the water from the Taff is nearly two degrees softer than that from the Bute Dock and the feeder, and three and a half degrees softer than the Glamorganshire Canal. The waste in soap, tea, and other articles of domestic consumption, occasioned by the use of the pump waters mentioned, must entail a considerable pecuniary loss, besides much additional labour, upon the inhabitants.

'Analysis of Water, as respects Hardness.

No.	DESIGNATION.	Hardness.
	Well Waters.	o
1	Mr. Clinton's pump, Hastings Villa . .	16·72
2	Crockherbtown public pump	18·84
3	Mr. G. Williams' pump, Nelson-terrace .	20·38
4	Town-hall (public) pump	23·46
	River Waters.	
5	The Bute Dock	7·20
6	Feeder to the Bute Dock	7·31
7	The Glamorganshire Canal	8·92

It may be proper to mention, that a short time previous to the inquiry taking place, a scheme was projected, and provisionally registered (June, 1849), for the establishment of a company to supply the town with water. Mr. C. E. Bernard, C.E., the promoter of the scheme, gave us the following particulars of his plans:—

"I propose to take the water from the Bute Dock Feeder, at times when there is a full supply in the river Taff; and when there is a short supply in the Taff, from a point in the river opposite Pont-Canna, and just below the confluence of the Brook. The reservoir is proposed to be formed near Cathay's Park, at a level of about 20 feet above the lowest part of the town, and the water would be pumped up by steam-power, and filtered before distribution. It is proposed that the supply should be continuous."

Dwellings of the Poor. — *Overcrowding.* — Nothing can be worse than the house accommodation provided for the labouring classes, and the poor in this town; and the overcrowding is fearful, beyond anything of the kind I have ever known of. In proceeding to give some detail as to the local position and condition of these abodes, I shall begin with the new district towards Whitmore-lane, comprising Stanley-street and Mary Ann-street, which is, perhaps, the worst, all things considered.

Stanley-street contains at present 18 houses, chiefly the property of Mr. William Stanley and Mr. William Evans, schoolmaster; one end only of the street has been built upon, and it has been recently partially pitched; but it is never scavengered. The breadth of the street, from house to house, is 15 feet. The houses have each two rooms only (with one exception, where there are four), one above the other. The privies are ranged along the backs of the houses, mostly in small back rooms, pantiled, opening out of the living room. These houses are occupied by the lowest class of Irish, who swarm into the town at all seasons. The rents are from 2*s.* 6*d.* to 4*s.* a-week; and one house kept by John Bryant I understand is rented as high as 8*s.*

a-week. The occupiers take in an unlimited number of lodgers, four or five families sometimes inhabiting one house.

In Mary Ann-street, which runs parallel to Stanley-street, the houses have four rooms, two below and two above. The privies of many of these houses are ranged at the end of small courts, at the back of the privies of the houses in Stanley-street. Mr. Clinton states, "there is an exceedingly rough drain, covered over with unjointed stones, and in a shocking state, to take the soil from these privies." These houses let at 3*s.* 6*d.* a-week. There are a number of lodging-houses in this street, chiefly for tramps and vagrants, who pay 3*d.* and 4*d.* a-night.

Mr. G. Clinton states:—

"There is a great deficiency of houses in the town in proportion to the population. I know many parties living in lodgings who would like to have houses if they could get them. Houses of the lower class, which are about to be built, are now commonly let before even the first stone is laid. The rents of the cottage property throughout the town is very high. The very lowest class of cottages—those in Stanley-street, for instance—which have only two rooms each, and the building of which would not have cost more than 40*l.*, let for 6*l.* 10*s.* a-year; very inferior cottages let as high as 10*l.* a-year. This high rent, occasioned by the want of houses, is one of the main causes of the fearful overcrowding. I have heard, and have no doubt of the fact, of people sleeping in the small back room in Stanley-street (9 feet long by 6 wide), in which the most offensive privies are placed. These people all lie within 18 inches of the drain before mentioned, and separated from it only by a rough wall."

Mr. Stanley says:—

"In one house of two rooms, where they have since had six cases of cholera, I was told that the hole of the privy was stopped up, and the seat made to serve as a pillow to a bed upon which some persons slept. This was before the cholera happened."

The following statement of the dimensions and arrangements of the houses in Stanley-street, having reference to the accompanying plan, (No. 3.) is given by Mr. G. Clinton:—

(*When not otherwise stated, there is a second room over the living room, of about the same size.*)

"No. 1. Living-room 10 ft. 8 in. long, 10 ft. 10 in. deep, 7 ft. high; no outlet. The privy at the end of house, with door opening into Whitmore-lane.

"No. 2. Living-room 11 ft. 8 in. long by 11 ft. deep, 7 ft. high; outlet at back 6 ft. long, 2 ft. 2 in. wide; privy at one end, covered over; no door or frame in front.

"No. 3. Living-room 13 ft. 3 in. long, 10 ft. 9 in. wide, 7 ft. high; outlet at back 8 ft. long, 2 ft. wide; privy at one end, covered over; no door or frame in front.

"No. 4. Living-room 13 ft. long, 11 ft. wide, 7 ft. high; outlet at back 7 ft. 6 in. long, 2 feet wide; at the end a privy, no door or frame in front.

"No. 5. Living-room 12 ft. 2 in. long, 11 ft. wide, 7 ft. high; outlet

at back 7 ft. 6 in. long, 2 ft. wide; privy at the end covered over; no door or frame in the front.

"No. 6. Living-room 15 ft. 9 in. long, 9 ft. 5 in. wide, 7 ft. high; no outlet at back; privy entered from under the stairs, covered over with flags, two courses of brick taken off in the top, except at the corners. The door and frame is under the stairs, none to the privy.

"No. 7. Living-room 16 ft. long, 9 ft. 7 in. wide, 7 ft. high; outlet at the back 6 ft. long by 2 ft. wide; privy at the end covered over, door or frame in front.

"No. 8. Living-room 17 ft. 4 in. long, 10 ft. 3 in. wide, 8 ft. 3 in high; out-house 7 ft. 9 in. long, 5 feet 3 in. wide, pantiled over, except space 2 ft. by 9 in; privy-seat in this room, not enclosed; no other outlet.

"No. 9. Living-room 17 ft. 8 in. long, 10 ft. 4 in. wide, 8 ft. 3 in high; out-house 9 ft. 6 in. long, 6 ft. wide, covered with pantiles, 6 of them off. There has been a privy in this room; no accommodation now no outlet.

"No. 10. Living-room 17 ft. 8 in. long, 10 ft. 2 in. wide, 8 ft. 3 in high; outhouse 8 ft. 9 in. long, 6 ft. wide, covered with pantiles; privy seat in one corner; no outlet; privy not enclosed.

"No. 11. Living-room 17 ft. 8 in. long, 10 ft. 3 in. wide, 8 ft. 3 in high; out-house 9 ft. 2 in. long, 6 ft. 2 in. wide, covered with pantiles 10 off; privy seat in one corner, not enclosed; no outlet

"No. 12. Living-room 17 ft. 10 in. long, 10 ft. wide, 8 ft. 3 in. high outhouse at back 8 ft. 9 in. long, 6 ft. 2 in. wide, 11 pantiles off; privy seat in one corner, not enclosed.

"No. 13. Living-room 15 ft. 4 in. long, 11 ft. 2 in. wide, 7 ft. 6 in high; no outlet at back.

"No. 14. Living-room 14 ft. 9 in. long, 11 ft. 7 in. wide, 7 ft. 6 in high; no outlet at the back.

"The privy for these two houses is in the front between the houses opening into the street. These houses are kept the best in the street.

"No. 15. Living-room 17 ft. 3 in. long by 17 ft. wide, 7 ft. 10 in high; open court in the back for the two houses, with privy in one corner, not enclosed: part of the court covered over, as shaded.

"No. 16. Living-room 19 ft. 3 in. long, 17 ft. wide, 7 ft. 10 in. high the outlet and privy for these two as described for the last.

"No. 17. Living-room 15 ft. 10 in. long, 17 ft. 2 in. deep, 8½ high; other room, 10 ft. 7 in. long by 17 ft. 2 in. deep, 8½ ft. high two rooms over, the same size as living-rooms; court and shed at back partly covered; privy in one corner not enclosed.

"No. 18. Living-room 12 ft. 10 in. long, 17 ft. 8 in. wide; one room over; no outlet; out-house covered with pantiles; privy in one corner not enclosed.

"The black line (*a*) shows a partly-covered drain in Mr. Stanley's property, about 12 inches square, the top about 3 to 4 inches below the surface of the ground, covered with rough flat stones, joints quite open to the surface. The privies having no vaults under them, branches running from each privy to this partly-covered drain, running through the court at the backs of the houses in Mary Ann-street, it runs under the house No. 10 into a drain made by Mr. Stanley down the centre of Stanley street, communicating with the main drain along Whitmore-lane. T

Commissioners having caused Stanley-street to be pitched, at the expense of the proprietors of the houses, Mr. Stanley has sent in a bill for 16*l.* 6*s.* 8*d.*, being 65 yards run of culvert, at 5*s.* per yard, which is not yet paid.

"The black line (*b*) shows the drain Mr. Stanley has made under the floor of the houses in Mary Ann-street, and had tunnelled it under the pavement in the street to go into the grating, which has been stopped up two or three times by the Commissioners, complaints having been made by the neighbours of the intolerable stench arising from that being open, as all the privies from the houses in both streets come to it. The drains in the street was only intended to carry the surface water away, and not privies.

(Signed) "GEORGE CLINTON,

"*August* 10, 1849." "*Town Surveyor.*"

Mr. J. Box Stockdale, superintendent of police, makes the following report upon the condition of the houses in Stanley-street:—

"I have visited Stanley-street on particular occasions, when I have made a note of the number of persons in the different houses.

"On the morning of April 8th, 1849, I inspected several of the houses in Stanley-street, amongst others I went into a lodging-house kept by Michael Harrington (No. 17), who rents his house of William Stanley, paying a weekly rent, I believe, of 4*s.* a-week. This house is larger than most of the others in the same street. I counted the persons then living in the house; there were 54 persons, men, women, and children; they live, eat, and sleep all in one room. The smell arising from the overcrowded room was most overpowering. In another house close adjoining there were two persons ill of fever, both in one room, and there were two others in the same house just recovering. In one of the houses rented of Mr. William Evans I found a woman recently confined; this was in a room I should think of 10 feet square. In the same room were three other beds, and I was informed that three persons slept in each bed every night. The stench arising from these houses was like that from a fœtid cesspool. In one other house I found another woman recently confined, in a room in the same crowded state as the above. In most of the other houses rented of Mr. William Evans I found about 14 persons living and sleeping, that is, in each house, and there are often more. The least number I have met with in one of these small houses has been eight persons, living, eating, and sleeping in rooms without ventilation; these houses having neither back windows nor doors.

"The narrow street in front of these houses was filled with heaps of decayed vegetable matter, thrown out by the inmates themselves, and emitting a most offensive odour.

"On April 15th I had again occasion to visit Stanley-street. I found the houses and street generally in a most filthy state. In one house (No. 6), rented by Cornelius Driscoll, I found a newly constructed privy, and the way to it was from under the stairs to a small yard. Twelve persons reside in the house permanently, in which were three beds. The next house to it was the same, and twelve persons were

living there. These houses have two rooms, one up stairs, and one down.

" *Michael Mahony* rents his house (No. 9) from William Stanley, and has lived there seven years, and takes in lodgers. There is no yard to this house, and the privy is stopped up. Thirteen persons live in this house, in which there are four beds, two rooms, one up stairs and one down.

" *John Harrigan* (No. 10) has lived in Stanley-street for the last 10 years, and pays a weekly rent of 2*s.* 6*d.* per week. The privy is in a small out-house, having a door from the front room ; it is very offensive in the house, and has no covering. Three families reside permanently in the house, and number 11 persons, and occupy four beds ; in addition to this they take in occasional lodgers for the night and day.

" *Daniel Leary* rents his house (No. 11) of Mr. Stanley, and pays 2*s.* 6*d.* per week. There is a small privy in an out-house or shed adjoining the house, with a door opening to it from the front room. Four families reside permanently here, and occupy five beds, which are all on the ground; men, women, and children all lie in a heap together Lodgers are taken in here in addition at night.

" *Jerry Collins* lives in the house adjoining (No 12). Three families, consisting of 14 persons, occupy three beds, which are all in one room, any additional lodgers lie on the ground occasionally.

" *Michael Harrington's* is a lodging-house. On visiting to-day I found 45 inmates, but many more came in to sleep at nights, and paid per night, adults 3*d.* each, children half-price, and some 4*d.* and 6*d.*, according to the accommodation. There are no bedsteads, but all the lodgers lie on the ground or floor. The children were sleeping in old orange boxes, and on shavings; that is, the younger ones, or they would be liable to be crushed in the night by persons rolling over them. Each party had with them all their stock, consisting of heaps of rags, bones, salt-fish, rotten potatoes, and other things. The stench arising from this crowded house was hardly endurable. There were only two stump bedsteads in the house. The yard at the back was unpaved; there was stagnant water in the yard, and the privy was running over, and was covered with filth of the most disgusting description. The stench was sickening.

" *John Bryant* (No. 15) has lived there seven years ; takes in nightly lodgers. I counted 36 persons, men, women, and children, in the house. Some of the women were dressing in the presence of a number of men. Not the slightest regard is paid to decency, the women being nearly naked in the presence of the men and children. The privy was full and filthily dirty; the ash-pit was also full. There are 15 stump bedsteads in the house, all placed close together; in addition to this, all the floor and under the bedsteads are occupied by lodgers at night, who go away in the morning. The stench arising from this place is beyond anything that can be conceived, as the house is without ventilation. There are no tables, chairs, forms, or furniture of any description whatever in the house, which was in a filthy dirty state. The inmates of the above houses eat and sleep in the same rooms.

" On April 22, 1849, I again visited all the houses in Stanley-street. I found in them the usual number of persons ; every room was crowded. In Mary Cain's house (No. 17) a woman was just confined in the same

room with a number of other persons. I saw her at work. She told me she was confined on Friday the 20th, two days before.

"Again visited Michael Harrington's house; a woman named Kitty Tyler was confined in a crowded room two days before, the woman of the house assisting her. She told me she did not require any doctor. She was then in the same room with about 20 persons, and was on the floor."

Of Mary Ann-street and Whitmore-lane, Mr. Stockdale states:—

"In *Mary Ann-street* I have sometimes found the houses crowded to suffocation, all the bedsteads being placed close together, and the rooms quite full. Immediately before Llandaff fair, on Whit Monday, I have seen many of these houses so full that many of the inmates have had to sit up all night, sleeping on benches, chairs, and on the ground.

In *Whitmore-lane* are another kind of lodging-houses, which are principally inhabited by women of the town of the lowest class; they are all crowded together in rooms without sufficient ventilation, and are frequented principally by sailors. The low beer-houses here are principally brothels of the vilest description, and there are several of them in this street and immediate neighbourhood. Robberies are of nightly occurrence in these houses, which occupy much of the time of the police on that station.

"*Mill-lane* and *China-row* is a long narrow court, consisting of a number of small houses; some of these are low brothels in a most filthy condition, and inhabited by women of the lowest class.

"*Waterloo Buildings* consists of a number of small houses, principally inhabited by Irish, where lodgers are taken in.

"*Evans's-court* is a very narrow court, with close-built houses much overcrowded, and where lodgers are taken in addition. Since May, 1849, when cholera first appeared in this town, the number of inmates in most of the houses previously enumerated have been much thinned by an order from the 'Sanitary Committee,' and the police have been nightly employed to visit the lodging-houses, reporting those that have more persons in them than is allowed by the order of the 'Sanitary Committee,' and turning out of the houses all above the number allowed by the order of the 'Sanitary Committee,' the relieving officer giving orders to the house of refuge to such persons as may be turned out of the overcrowded lodging-houses.

"J. Box Stockdale,
"*Superintendent of Police.*"

The Courts.—To come now to the older parts of the town; indeed in the very centre of the ancient part of it, we find an abundance of close, ill-ventilated courts, the houses in which are of the smallest and lowest class, all crowded with inhabitants. Upon referring to the plan (No. 2) of the town, it will be seen that one cluster of these courts forms a sort of net-work between St. Mary's-street and the canal. In order to show the immense number of these objectionable spots, which choke up the vital atmosphere of the town, I give a list of them, with references to their position in the annexed plan:—

	Houses.	
Broad-street—		
No 1 contains	4	
No. 2, called Star and Garter-court	16	
		— 20
Womanly-street—		
No. 1, Harris-court . . .	6	
No. 2, Jones'-court . . .	8	
		— 14
Quay-street—		
No. 1, Pritchard's-court . .		10
Duke-street—		
Edy's-court		8
North-street—		
No. 1, Evans' School-house-court .	5	
No. 2, Cook's-court . . .	5	
		— 10
Smith-street—		
Masons' Arms-court		9
Queen-street—		
No. 1, Lloyd's-court . . .	4	
No. 2	2	
No. 3	2	
No. 4	9	
		— 17
Church-street—		
Arcade		6
St. Mary's-street—		
No. 1, Cross Bakehouse-court .	5	
No. 2, Landore-court . .	27	
No. 3, Golate-court or passage .	6	
No. 4, Dalton's-court (best in town)	10	
No. 5, Kenton's-court . .	12	
No. 6, Gayner's-court . .	6	
		— 66
Wharton-street—		
No. 1, Lloyd's-court, containing .	2	
No. 2, Reeves'-court . . .	4	
No. 3, Reeves'-court . . .	6	
No. 4. Rowe's-court . . .	7	
No. 5, Wharton-place-court. .	6	
		— 29
Hays—		
No. 1, Rising Sun-court contains .	6	
No. 2 and 3, Bird's-courts . .	22	
No. 4, Tabernacle-court . .	10	
No. 5, Brewer's-court . .	4	
No. 6, Brewer's-court . .	6	
No. 7, Evans'-court . . .	5	
No. 8, Carpenter's Arms-court .	7	
No. 9, Bowes'-court . . .	21	
No. 10, Kirkpatrick's-court . .	3	
No. 11, Old Foundry-court . .	6	
No. 12, Lewis-court . . .	2	
		— 92

	Houses.	
Bridge-street—		
No. 1, Evans'-court . . .	3	
No. 2, Thomas-court . . .	3	
No. 3, Robert-court . . .	7	
	—	13
Millicent-court—		
No. 1, Lewis-court . . .	1	
No. 2 and 3, Jenkins'-court . .	4	
	—	5
Love-lane—		
No. 1, Vachell's-court . . .	5	
No. 2, French's-court . .	4	
No. 3, Mason's-court . . .	3	
	—	12
Crockherbtown—		
No. 1, Dame-court . . .	7	
No. 2, Spittle-court . . .	9	
	—	16
Total . .	327	

In all 45 courts, with 327 houses. The general description of these courts, their houses, and tenants, may be summed up in a few brief sentences:—The ground in front is neither pitched nor paved, very uneven in surface, and often worn into holes; no steps to the doors, and in some instances the floor is below the surface of the court. Most of the houses consist of two rooms, one down stairs, and one up; there are no outlets except in front; the locality generally very confined, both as to superficial space and from light and air. No drainage; very few of the houses have privies to themselves, and the public privies in a filthy condition, most of them uncovered. No water supply by pumps or otherwise. These houses are very thickly inhabited, all weekly tenants.

Landore and Kenton courts are perhaps the worst of the lot, but still only differing in degree, not in the nature of their offensive features. It may be proper, therefore, to give a somewhat more detailed description of these quarters, plans of which are also annexed.

Landore-court, also known as Vachell's-yard, is built upon an irregular plot of ground, measuring about 160 feet long by 120 wide. It is closely built up on three sides; and, in order to make the most of space, an additional or middle row runs down the centre, between the two side rows. The passage or footway through the court is about 15 feet broad, in some places as narrow as 10 feet. There is no backlet to any of the houses, except to those in the centre plot, which open into a court of irregular form, ranging from 6 to 12 or 15 feet deep.

This court leads out of St. Mary's-street by a narrow passage, and is not a thoroughfare. It contains 27 houses, generally of

two rooms each, one above the other, some of them (as 11, 12, 13, and 14,) measuring 11 feet by 14 feet 8, and 7 feet 6 high. Some of the houses (as Nos. 8, 9, 10, and 15, 16, 17) have little inner rooms or closets, in some of which is a privy seat. In one of them (No. 16) there is an outlet with a privy in it. Houses Nos. 1 to 6 have the right of using the two privies in the front of Nos. 1 and 2. At the bottom of the court is a place, open and without covering, which is used as a public privy, and also for the depositing of every kind of filth, the contents of other privies and of cesspools being occasionally emptied into it. There are two ash-pits. There is no pump or water in the court, and the inhabitants fetch all the water they use from a pump in St. Mary's-street.

With respect to the rents paid at present for these unwholesome tenements, it appears that there are four let at 1*s.* 6*d.* a-week, one at 2*s.*, three at 2*s.* 3*d.*, eleven at 2*s.* 6*d.*, one at 2*s.* 9*d.*, and six at from 3*s.* to 3*s.* 6*d.* The remaining two houses are used as business premises, rents not known to me.

Superintendent Stockdale says:—

"I should think nearly 500 people—men, women, and children—live in the houses of this court. The disturbances that occur here call frequently for the interference of the police, and are also a frequent cause of complaint at the police court. All the observations I have made with regard to Stanley-street, as to the extreme overcrowding of the houses, apply equally here: they are inhabited chiefly by the lowest class of Irish."

Kenton's-court also leads out of St. Mary's-street. It is a long narrow passage, entered by an archway from the street, between 4 and 5 feet wide. The plot of ground occupied by the court is about 200 feet in length, by 27½ in width, of which 14 feet is occupied by the passage or footway in front of the houses. This court is very much confined by the dead wall of the brewery and malthouse on the side opposite to the houses. There is no thoroughfare through the court.

There are 14 houses in this court, of which Nos. 1 and 2 are used as business premises, the other 12 as dwelling-houses. One of these houses consists of four small rooms, two below and two above; the others consist of two rooms each, one below and the other above, measuring variously, some 12 feet square, some 10 feet 8 inches by 12 feet 11 inches, and the largest measuring 14 feet 5 inches by 13 feet 2 inches. There are no backlets to any of the houses. There are three privies and an ashheap at the end of the court in a most offensive condition. There is a pump also in the court, but which is seldom in working order. The only ventilation is through the broken panes in the windows, which do not open; the panes filled up with rags, paper, &c. Most of the floors are below the level of the court. There is no covered drain; an open channel runs down by the side of the malthouse

wall, until it reaches a shallow-covered drain running across the street to the river Taff.

The rents paid for these houses are 2*s.* 3*d.* a-week each, with the exception of No. 9, which is charged 3*s.* 3*d.*, and No. 8, which is charged 2*s.*

These houses are chiefly used as lodging-houses, of the same class as those in Landore-court, and are always much overcrowded.

It appears that since May, 1849, when cholera first appeared in this town, some exertions have been made by order of the Sanitary Committee, to thin the overcrowded population of the districts above described, and the police had been nightly employed in visiting the lodging-houses, reporting those that had more persons in them than was prescribed by the Sanitary Committee, and turning out all above that number, the relieving officer giving orders of admission to the House of Refuge for all such persons so turned out.

The principal cause of the excessive overcrowding found to prevail in Cardiff, is the vast influx of destitute Irish from Cork and Waterford, who have been partly attracted in the hope of obtaining employment on the public works, and partly by the extraordinary facilities of conveyance offered by the captains of vessels trading to this port. Mr. H. J. Paine states, and the same observation has been made by others, that these poor wretches are "brought over as ballast, without any payment for their passage. The captains, it appears, find it cheaper to ship and unship this living ballast than one of lime or shingles." They are generally landed, however, on the coast before the vessels arrive at the port; and from thence they make their way into the town and throng the lodging-houses, bringing pestilence on their backs, famine in their stomachs; for Mr. H. J. Paine states, that many of them have exhibited symptoms of incipient fever on their arrival, and that it has been from this source that fever has subsequently spread through the town. He adds:—

"Frequently the lodging-house keepers become alarmed when the epidemic shows itself. As soon as an inmate exhibits symptoms of disease, he is thrust into the street, and we are obliged to move him into the workhouse. This has recently given rise to typhus in a severe form among the inmates of the house."

This gentleman gives the following general evidence upon the subject of overcrowding:—

"It is the common practice for these rooms to be occupied by relays of sleepers, some of them being engaged on work during the night, and some during the day. I once found a bed-room, 12 feet by 10 feet, in a small house, which contained four beds. In the day time there were six men asleep in three of the beds, and I was informed that two others had just quitted the remaining and empty bed. During the night, these beds would be occupied by another set of men. From this custom the

atmosphere of the room is constantly vitiated, the window being never opened for ventilation. From such causes as this Stanley-street is never without fever.

"In one house I visited in Stanley-street, I found an adult man and woman, brother and sister, occupying the same bed, labouring under fever. In another house in the same street, I found a similar case. In another house, where I had occasion to attend an inmate, I found a lad of 17 or 18 years of age sleeping in the same bed with his father and mother. It is a constant custom for four or five families to sleep in one bed-room."

SANITARY CONDITION.—Mr. H. J. Paine, states:—

"I have assisted Mr. Lewis for the last two years in the town district, during which time the town has been visited by two or three epidemics. The most severe one was that of typhus fever, which broke out in the spring of 1847, and continued till the spring of 1848. In the course of that period I attended 283 cases of typhus fever at their own houses. I attribute the greater severity of the disease in particular streets to local or endemic causes. For instance, while David-street was comparatively free, Stanley-street, Little Frederick-street, Love-lane, and Whitmore-lane were severely visited (*see* tabular statement). It will be seen by the list I hand in, that in these four streets 122 cases of typhus fever occurred, viz.:—75 in Stanley-street, 8 in Love-lane, 25 in Whitmore-lane, and 14 in Little Frederick-street; whilst in David-street there was only one case. David-street is surrounded by the streets before mentioned, but is broader, and the houses in it are not overcrowded, and are better and more cleanly kept than those in the other neighbouring streets. The drainage of the other streets is of the worst description. Stanley-street is sometimes almost impassable from the quantities of veritable refuse and other noxious matters covering its surface.*

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* The following is a copy of the paper handed in by Mr. H. J. Paine:—

TABLE of LOCALITIES, and extent of Epidemic Fevers and Dysentery, during the periods of, from March 25, 1846, to March, 1848.

LOCALITIES.	TYPHUS FEVER.		DYSENTERY.
	1846-47.	1847-48.	1847-48.
Stanley-street	75	23	13
Landore-court (Vachell's-yard)	48	24	8
Mary Anne-street	32	4	2
Whitmore-lane.	25	5	6
Kenton-court	25	5	3
Little Frederic-street . . .	14	14	5
John-street	10	1	2
Hill-terrace.	9	8	. .
Love-lane	8	4	12
Millicent-street	7	8	7
Bridge-street	6	1	2
Calleugh-court and Hayes .	6	3	. .
China-row	4	. .	1

"I have found the tract of cholera identical with that of typhus; and I believe it to be localised by the same conditions. For instance, the streets before mentioned, have been visited by cholera in the following proportions:—

	Cases.	Deaths.	Recovered.
Stanley-street . .	26	16	10
Love-lane . . .	7	6	1
Little Frederick-street	10	7	3
David-street . . .	8	5	3
Whitmore-lane . .	..	..	..

"I have had very few cases except in the over-crowded houses.

"Upon visiting a house in Stanley-street, during the epidemic of 1847, in the day time, when some of the inmates I knew were from home, I found 43 individuals in the house, who all belonged to it, and at the time I had five of them in typhus! the house has four rooms, two above and two below. It is a lodging-house kept by one Michael Harington. The woman of the house once admitted to me that 60 persons were in the habit of sleeping in it. When any epidemic breaks out, it is sure to show itself somewhere in this street, for instance there is a house kept in this street by James Mahony (No. 9), in which there are two rooms. I had eight cases of cholera in this house, six of which terminated fatally. We buried the bodies as soon as possible after death, but I had at one time three corpses in the room up stairs.

"In Landore-court, I had 48 cases of typhus fever. During the cholera it has been out of my district. In Kenton's-court I had 25

(*Note continued.*)

LOCALITIES.	TYPHUS FEVER.		DYSENTERY.
	1846-47.	1847-48.	1847-48.
Rising Sun-court	3	1	1
Wharton-street.	3	..	3
Charlotte-street	2	1	1
Lewis-street	2	..	2
Mill-lane	2	6	3
David-street	1	3	1
Pritchard-court	1	..	..
Tunnel	..	4	3
Rodney-street	..	5	3
Ruperra-street	..	2	..
Union-buildings	..	3	2
Waterloo-buildings	..	6	4
Caroline-street	..	2	2
Union-street	..	2	5
Queen-street	..	2	3
Quay-street.	..	1	..
Five Bells-court	..	1	..
Total . .	283	139	94

cases of typhus fever. I believe that the cholera has been dreadful there, but it is out of my district.

" When the cholera broke out a Sanitary Committee was formed: the town was subdivided into districts, and printed bills were distributed and posted about, directing persons attacked with premonitory symptoms to make application to the medical man of the district. In my district about half the total number of cases (114) of cholera occurred. Until directions were received from the Board of Health, the diarrhœa cases were not registered, since these directions were received, I have registered upwards of 300 cases, but this must be under half the number I have prescribed for. Unquestionably unless these cases had been treated in the incipient stages, a great proportion of them would have merged into decided cholera.

" At the time the epidemic broke out in 1847, in addition to the cases given before as attended by myself, 186 were admitted into a temporary hospital in the suburbs of the town, 61 of them were fatal. This large proportion of mortality is to be accounted for by the circumstance of nearly all the cases being those of Irish, suffering from fever at the time of their landing, and in a half famished state, immediately going to the hospital. The cases in fact may be said to have been imported direct from Skibbereen and Clonakilty.

" The residents in the town do not suffer much from ague, but in the immediate suburbs this disease prevails extensively. In Canton on the west side out of the town, almost every house is more or less afflicted with it. Towards the Docks, where there are large pools of stagnant water, this disease also shows itself a good deal. I have no question that it would entirely disappear if those parts were properly drained."

Mr James Lewis, Medical Officer of the Cardiff Union, speaks generally upon the state of health of the town, referring for the particulars in the district near Whitmore-lane, to Mr. H. J. Paine, whose evidence is given above. Mr. Lewis adds his testimony to the unwholesome state of the crowded houses in this district, and also of the courts in the centre of the town, more especially Landore and Kenton-courts, he states,—

" I consider disease in Cardiff, without reference to the present epidemic, to have increased during the last two or three years 5 or 8 per cent. in consequence of the immense invasion of Irish destitute labourers, navigators and others, who have been brought over to this town by public works, and consequently over-crowding the different lodging-houses."

In the following opinions it would appear, that Mr. Lewis, whilst admitting that overcrowding and bad ventilation are causes of disease, does not attach sufficient importance to drainage, and the miasmatic exhalations, which result from the want of it, he says,—

" There are no diseases endemic to this town under favourable circumstances. There is intermittent fever or ague always more or less in this town. Dysentery has much prevailed in the town during the last

two years. I do not attribute the presence of the low fever to the stagnant ditches and ponds round Cardiff, but to the destitute condition of the people."

He afterwards admits, however, that,

"Undoubtedly the health of the place would be promoted by drainage of the land round the town. Below Whitmore-lane, there must be miasma arising from the stagnant pools, and it may have some effect in producing ague. I think the health of Cardiff is much favoured by the fact of the town being built on a gravelly soil; and I may state that as surgeon to the county gaol, which is built on a bed of gravel, I have never had but one case of ague."

Upon this passage I may be permitted to remark that, it appears to me in itself a most conclusive testimony in support of the immense and paramount importance of drainage over every other local circumstance, in favour of health. When Mr. Lewis states, that the town is built upon gravel, it should be borne in mind, that this remark only applies to that part of it north of Whitmore-lane; this gravelly substratum affords a natural means of drainage, at least of surface water, and prevents the accumulation of such pools of water, as are found in the clay-bottom district, south of Whitmore-lane. The former parts so drained by nature, are more healthy than the latter, which, undrained by nature, have been also left undrained, or very badly drained, by artificial resources. Mr. Lewis states further,—

"The cholera has prevailed principally in the places which have been most subject to typhus. Typhus fever has entirely disappeared from the union workhouse since the appearance of the cholera, and since the Board reduced the number of inmates. There has been no cholera in the workhouse; there was one suspicious case. The workhouse is on gravel."

To sum up this branch of the inquiry, I refer to a return from Mr. E. John, Relieving Officer of the town (*see* Table), who states,—

"In the year 1848 there was expended, on account of sickness, in the parish of St. Mary's 380*l.* 14*s.* 2*d.*, and in the parish of St. John 180*l.* 8*s.* 6*d.*, total 361*l.* 2*s.* 8*d.* There was also paid for coffins, where no other relief was given, in the parish of St. Mary's, 80*l.* 6*s.* 6*d.*, in the parish of St. John 21*l.* 10*s.* 4*d.*, total 101*l.* 16*s.* 10*d.*; making a gross total of sick relief and funerals of 662*l.* 19*s.* 6*d.*

"The total number of cases during the year in the parish of St. Mary's was 304, in St. John's 126; total 430."

PARISH OF ST. MARY.

NAME OF STREET.	Fever.	Dysentery.	Small-pox.	Other causes of Sickness.	Deaths where no Relief has been given.
Millicent-street	6	..	3	13	2
John-street	1	3	1	4	1
Dry-dock	..	..	..	2	..
Canal-bank	2	..	..	4	..
Mill-lane	4	1	1	6	2
Landore-court (Vachell's-yard)	9	3	4	30	12
Bridge-street South	1	..	..	6	1
Little Frederick-street	4	2	..	5	..
Love-lane	2	7	..	6	1
Mary Ann-street	5	2	1	15	1
Stanley-street	10	3	4	32	9
Whitmore-lane	4	6	1	9	5
Wharton-street	2	1	..	4	1
Sea-lock	..	..	..	1	..
St. Mary-street	..	..	1	5	1
Court, Coleman-row	..	..	..	4	..
Charlotte-street	2	..	..	8	2
Kenton's-court	2	4	1	7	..
Baker's-row	..	..	..	3	..
Lewis-street	..	1	1	7	..
David-street	1	2	..	6	3
Caroline-street	2	2	..	4	1
Rodney-street	2	2	..	5	1
Newtown	1	..	..	1	..
Workhouse	..	..	..	..	28
Other places	..	..	..	..	11
Total	60	39	18	187	82

PARISH OF ST. JOHN.

Womanly-street	..	..	..	6	1
Hill's-terrace	4	3	..	10	..
Hayes and Catleugh's-court	4	5	1	7	..
Great Frederick-street	3	1	..	9	1
Paradise-place	..	..	..	1	..
Five Bells and Star-and-Garter-courts	..	..	1	4	..
Baker's-row	..	..	..	2	..
Edy's-court (Duke-street)	..	..	..	1	..
Canal-street	2	2	..	3	..
Union-buildings	2	2	..	6	..
Saint John-street	..	..	..	1	..
Waterloo-buildings	8	4	2	4	..
Union-street	1	..	1	3	1
Spittal	..	..	1	1	..
Pritchard's-court	1	..	..	2	..
Queen-street	1	1	..	3	..
North-street	1	..	..	2	..
Old Gas-yard	..	..	..	2	..
Tunnel-buildings	1	1	..	3	..
Bridge-street (North)	1	1	..	1	1
Workhouse	..	..	..	..	16
Other places	..	..	..	..	1
Total	29	20	6	71	21
Saint Mary, brought forward.	60	39	18	187	82
Grand Total	89	59	24	258	103

From the tabular statement, it appears that of three serious class of cases—fever, dysentery, and small-pox—there were of fever, in St. Mary's, 60; St. John's, 29. Dysentery—St. Mary's, 39; St. John's, 20, Small-pox—St. Mary's, 18; St. John's, 6. Of these serious cases in St. Mary's, the following number took place in Landore-court, Stanley-street, Mary Ann-street, Kenton-court, and Whitmore-lane:—

——	Fever.	Dysentery.	Small-pox.
Landore-court	9	3	4
Stanley-street	10	3	4
Mary Ann-street	5	2	1
Kenton's-court	2	4	1
Whitmore-lane	4	6	1
Total in five streets already specially referred to as unhealthy	30 out of 60	18 out of 39	11 out of 18

The number of deaths where no previous relief had been given in the two parishes were, in St. Mary's, 82; in St. John's, 21.

To this return Mr. E. John appends the following observations:—

"There were relieved in the workhouse, in 1848, one widow and 26 orphans, whose parents, or last surviving parent, had died within a period of about three or four years; several of them the children of Irish parents, who died of what was called the Irish famine fever, and who had not resided in the town, having been landed on the coast in this neighbourhood in a state of starvation and disease; others are the children of wayfarers, who were unable to proceed on their journeys from illness, and ultimately died, leaving a child or children after them: there were also on the out-door relief list 30 widows, having 102 children dependant on them, and nine orphans, whose husbands and parents have died, at various times and from various causes, within a period of from four to five years. The causes of death of the 103 persons, under column 18, will probably be explained in the doctor's report. I have only to remark that 44, out of the 103, died in the Union workhouse and old workhouse in Cardiff, at a time when fever and dysentery were very prevalent; and among them were many strangers having no residence in the town. Other diseases, under column 10 in the return, embrace debility, colds, lumbago, and trifling illnesses, many of them scarcely amounting to a sufficient cause to entitle the applicant to out-door relief. Ulcers and fractures, column 6, include crushed feet and hands, by working with the iron—ulcerated legs and sore hands, which the Irish people are very subject to; and these last class of persons form more than a moiety of the whole number of cases. The 49 cases of confinements are almost exclusively Irish, as it is the invariable rule with the lower class of Irish husbands to absent themselves during the confinement of their wives. I think it probable that, in a great many instances, fever has been brought on in consequence of parties who had

been working the whole of the week on the farms in the country, and sleeping in wholesome airy barns, coming into the town on Saturday night, and remaining there until Monday morning, sleeping in over-crowded and ill-ventilated houses, predisposing them to take colds, and so inducing fever. I am of the opinion that one of the exciting causes of the prevalence of so much sickness among the lower classes of the population of this town, is the over-crowding of their dwellings, particularly the Irish. I have myself reckoned 25, and, in some instances, 30 persons in houses that had been certified, during the prevalence of cholera, to be capable of containing only eight."

Burial-grounds.—There are five burial-grounds in the two parishes.

1. Burial-ground attached to the parish church of St. John, from half to three-fourths of an acre in extent. This is in the middle of the town, and surrounded on all sides by houses. The substratum is gravel, and it is dry. The Rev. Thomas Stacy, curate of the parish, says,—

"The ground is excessively crowded, so much so, that burials since the new ground has been opened, do not frequeutly take place in it. The interments now are chiefly those of members of families already interred in it. Before the new ground was provided, which was opened last January twelvemonth, all the alleys in this ground were dug up to make room for interments, until the over-crowding became excessive. Persons dying of typhus fever were frequently interred with no more than two feet of soil above them. The custom of charging increased fees in proportion to the depth of the graves, prevailed with respect to the old ground, and had a material effect in the occupation of the surface of the ground. In the new ground all graves are dug to the depth of nine feet, but when the smaller fees only are paid, three or four bodies are interred one over the other."

The following circumstances detailed by the same reverend gentleman, is a curious instance of the action of gases evolved from this old and crowded burial-ground:—

"About two years since a person came to the town to take photographic likenesses, and he occupied a room, the window of which opened on the churchyard on the western side. When the wind blew from the east on that house, he found that he had great difficulty in obtaining the impression of the likeness, if he did at all. This was referred to the state of the atmosphere above the ground, which was probably affected by the emanations from it. I have myself perceived very heavy offensive smells proceeding from the churchyard."

2. The new burial-ground is situated about half a mile from the town, on the eastern road. It is two acres in extent, the substratum is gravel, and it is drained to the depth of 9 feet. This ground was consecrated in January, 1848, and is appropriated equally to the parishes of St. John and St. Mary. It will afford accommodation for interments for many years to come, but will be unequally filled, the population of St. Mary's parish being larger than that of St. John's.

3. Burial-ground attached to the English Baptist chapel, situated in St. Mary's parish, a little below the market-house. In extent, it is somewhat under a quarter of an acre. It has been used for interments for 43 years. There are no houses adjoining it on either side, except at the entrance, but on all sides the houses are not far from it. On the east and north sides they are separated from it by gardens. The ground is not crowded, the congregation being limited in number, and it is supposed there will be burial accommodation in it for many years to come. The graves are dug from 6 to 8 feet deep. The ground is in the hands of trustees for the use of the society, and the proceeds of the interments are paid into the general fund.

4. A small burial-ground attached to the Welsh Baptist chapel, in St. Mary's parish, and in the Hayes.

5. Burial-ground attached to the Welsh Independent chapel, in St. John's parish, and the Ebenezer chapel, Ebenezer-street, at the back of Union-street. This ground on two sides is bounded by streets, and on both the other sides by houses, but not very close to it. It is not at all crowded. One part of it is quite unoccupied with graves. Not more than 15 or 16 interments take place here in the course of the year. The graves are usually dug 6 or 7 feet deep; it is a gravelly soil. The Rev. Mr. Powell, the minister of the congregation, says,—

"Sometimes when it is very wet, there is seen a little water in the graves. We sometimes refuse to bury strangers, on account of the accommodation being provided for members."

RECAPITULATION AND SUMMARY OF CONCLUSIONS.

It appears from the preceding statement—

1. That the town of Cardiff is unfavourably situated by reason of its low level for natural drainage, and that the provision for surface drainage is insufficient, parts of the town and the neighbouring country being liable to be flooded, and having at all times a large surface of stagnant water exposed.

2. That, with the exception of a small portion of the town, there is no provision for refuse drainage, and even where such provision exists it is extremely defective.

3. That the privy accommodation is very insufficient and bad; and that, in consequence, the streets are in a filthy state from the slops and night-soil thrown upon them.

4. That the public supply of water is very limited in quantity, and obtained at great inconvenience and cost by the inhabitants. That there is only one public pump of tolerable drinking water, and that this is frequently dry, and at such times is locked up. That a large proportion of the wells, both public and private, are more or less affected, and their water contaminated by the leakage of cesspools and filthy surface-drainage.

5. That a Board of Commissioners exists, under a local Act, for paving, draining, and lighting the town of Cardiff, with power to raise rates, which with judicious management might be made sufficient to effect all these objects in a satisfactory manner; but that, apparently from a desire to avoid expense, the Commissioners have done very little in regard to paving and draining. That the scavenging and watering the streets, also done under the local Act, have been very partial in extent, and generally inefficient.

6. That the town is lighted with gas by a joint-stock company, but complaints are made that the Commissioners' lights are not sufficient in number nor fairly distributed.

7. That there is a great deficiency of house accommodation in proportion to the large and increasing population, particularly of the poorer classes, who, encouraged by the facilities of transit, have been attracted to the town in large numbers from the south of Ireland and other places by the public works going on in it. That, in consequence, the rents of the poorer tenements are inordinately high, whilst the accommodation afforded is extremely limited and bad; and that a system of overcrowding is carried on (probably unequalled in any other town in the kingdom), with the most fearful results upon the health and morals of the classes referred to.

8. That the old burial-yard of St. John's is crowded to an excessive degree, but that a new ground for the use of this parish, jointly with that of St. Mary's, has been recently opened, about half a mile from the town, which will afford sufficient burial accommodation for some time to come. That there are three other smaller burial grounds in the town, attached to various chapels, none of which are much crowded, but are all, from their situation, highly objectionable.

9. That the sickness and mortality from fevers and contagious disorders, preventible by ordinary sanitary precautions, is excessive, particularly in the newer part of the town, causing a heavy expense to the Union.

10. That it would be for the comfort and health of the inhabitants, and that their condition would be improved by—

a. A thorough system of surface and refuse drainage.

b. An abundant supply of pure water.

c. Increased and improved dwelling accommodation for the poor, and the adoption of regulations for the prevention of overcrowding.

d. The improved paving of the streets, as well those now under the control of the street commissioners as others, which they have not yet adopted.

e. Increased lighting.

f. More efficient scavenging of the streets.

g. The discontinuance of interments in the burial grounds within the town.

RECOMMENDATIONS.

I therefore recommend—

I. That the Public Health Act 1848 be applied to the town and municipal borough of Cardiff.

II. That the present boundaries of the town and municipal borough be the boundaries of the district to which the Public Health Act is to be applied.

III. That the whole of the provisions of the Public Health Act, (except the section numbered 50 on the copies of that Act printed by Her Majesty's printers,) be applied to the district above-described.

[The Town Council will become the local Board of Health for the district.]

Remedial Works.—The two classes of works that would produce the greatest effect in improving the sanitary condition of the district, are undoubtedly those of drainage and water-supply. The Improvement Commissioners, as before stated, have already had before them several plans for draining the town, and there is now before Parliament a Bill, promoted by a joint-stock Company, for "supplying with water the town and port of Cardiff and the neighbourhood thereof." Under these circumstances, I shall abstain from the consideration of either subject; for it appears to me that, in the present advanced stage of the question, as regards both classes, any observations of mine, to be of practical value, ought to be founded on much more extensive and accurate information than could possibly be obtained within the range of an inquiry of this preliminary character.

I may state generally, however, that I see no reason why Cardiff should not be supplied with water as, or very nearly as, cheaply as Nottingham, Preston, and other towns that might be named, where the houses occupied by the poorer classes have this vehicle for the removal of filth, laid on without stint, on payment of a rate amounting to about 1*d.* per week each; or why its dwellings of similar character should not be efficiently drained,—as it has been shown in other instances they may be,—for a like weekly charge. I may add, too, having seen the evident facilities presented by the extensive tract of marsh land on the east side of the town for sewage irrigation; that such an application of the liquid refuse ought, in my view, to constitute a main feature of the plan of drainage to be carried out.

I have the honour to be,
My Lords and Gentlemen,
Your very obedient servant,
T. Webster Rammell

The General Board of Health.

APPENDIX.

The Cholera.

The cholera was raging in Cardiff at the time this inquiry took place, and continued to do so for some months afterwards. I have since received from Mr. W. B. Watkins, the Superintendent Registrar of the district, tables of the numbers of deaths from cholera and diarrhœa in each month during the year, in the two parishes of St. John's and St. Mary's respectively, which I here append. The whole amount of deaths appear to have been in the parish of St. Mary's, cholera 303, diarrhœa 18; in St. John's, cholera 44, diarrhœa 18; total cholera 347, diarrhœa 36; a fearful visitation for a population not exceeding 12,000. An inspection of the return itself will fully confirm the evidence of Mr. Paine as to the greater severity of the attack in those localities ordinarily afflicted with an excess of sickness and disease.

	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa	Cholera	Diarrhœa
St. Mary-street	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	2	..	..	..	..	..	..	..	4	..
Old Workhouse	..	..	..	..	..	..	..	..	1	..	9	..	7	..	6	1	1	..	..	..	..	..	..	..	24	1
Wharton-street and Bakers-row	..	..	..	..	..	..	..	..	..	..	4	..	..	..	1	..	..	..	..	..	..	..	1	..	6	..
Kington's-court	..	..	..	..	..	..	..	..	1	..	5	..	6	..	1	..	..	..	..	..	..	..	..	..	13	..
Caroline-street	..	..	..	..	..	..	..	..	1	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	4	..
Mill-lane	..	..	..	..	..	..	..	..	1	..	8	..	2	..	1	..	..	..	..	..	..	..	..	..	12	..
Landore-court	..	..	..	..	..	..	..	..	..	..	6	..	..	..	1	..	..	..	..	..	..	..	..	..	7	..
Hayes, embracing Tabernacle-court, Rowe's-court, and Evan's-court, Union-buildings, and Waterloo-buildings	..	..	..	2	..	..	..	..	1	..	3	..	6	..	9	..	6	..	..	..	..	..	..	..	25	2
Bridge-street	..	..	..	..	..	..	..	..	3	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	5	1
Millicent-street	..	..	..	..	..	..	..	..	1	..	6	..	3	..	5	..	3	1	..	..	..	..	..	..	18	1
Little Frederick-street	..	..	..	..	..	..	..	..	3	1	3	..	1	..	3	..	..	..	..	..	..	..	..	..	10	1
Mary Ann-street	..	..	..	..	..	..	..	..	4	..	4	..	1	..	3	..	..	..	..	..	..	..	..	..	12	..
David-street	..	..	..	..	..	..	..	1	1	..	10	..	..	..	4	..	1	..	..	..	..	..	..	..	16	1
Stanley-street	..	..	..	..	..	..	..	..	6	..	10	..	2	..	..	..	1	..	..	..	..	..	..	..	19	..
Love-lane	..	..	..	..	..	..	..	..	3	..	2	..	1	..	2	..	..	..	..	..	..	..	..	..	8	..
Rupena-street, Tredegar-street, Rodney-street, and Homfrays	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	1	..	..	..	..	..	1	..	6	..
Lewis-street	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	3	..	..	..	..	..	..	..	4	..
Charlotte-street	..	..	..	..	..	..	..	..	2	1	..	..	1	..	2	..	..	..	..	..	..	..	..	..	5	1
Court, Colman's-row	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Whitmoor-lane	..	..	..	..	..	..	..	..	2	..	6	1	4	..	3	..	2	..	..	..	..	..	..	..	17	1
New Town	..	..	..	..	..	..	..	..	..	..	2	..	1	..	9	2	..	1	..	..	..	..	..	..	12	3
John-street	..	..	..	..	..	..	..	..	1	..	3	..	..	..	1	..	..	..	..	..	..	..	..	..	5	..
Bute-street	..	..	..	..	..	..	..	..	1	..	4	..	3	..	1	1	5	..	..	..	..	..	..	..	14	1
Bute docks	..	..	..	..	..	..	..	..	1	..	12	..	8	..	4	..	5	..	1	1	..	1	..	..	31	2
Canal, sea-locks, and glass house buildings	..	..	..	..	..	..	..	..	..	..	16	..	3	..	6	2	..	1	..	..	..	..	..	..	25	3
Totals	..	..	..	2	..	..	..	1	33	2	117	1	52	1	68	6	30	3	1	1	..	1	2	..	303	18

STATEMENT of the TOTAL DEATHS from CHOLERA and DIARRHŒA in ST. JOHN'S Parish. Extracted from the Registration Returns.

—	January.		February.		March.		April.		May.		June.		July.		August.		September		October.		November.		December.		Total.	
	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.	Cholera.	Diarrhœa.
Angel-street	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Womanly-street and Quay-street, and Jones's-court	1	..	..	..	..	..	..	..	..	..	5	..	..	..	1	..	1	..	..	..	..	1	..	..	8	1
Church-street	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	2	..
Working-street and Old Gas-yard	..	..	..	..	..	..	..	..	..	..	2	..	..	..	4	..	..	..	..	..	..	..	..	..	6	..
High-street	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Gower's-court	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Queen-street	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Smith-street	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Crockherbtown	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Tunnel	..	..	..	..	..	..	..	..	..	..	..	..	1	..	4	..	..	..	..	..	..	..	..	..	5	..
Canal-street	..	..	..	..	..	..	..	..	2	..	..	..	3	..	1	..	3	..	..	..	..	..	..	..	9	..
Great Frederick-street	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	1	1	..	1	1	..	..	..	4	2
Union-street	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	3	1
Union Workhouse	..	1	..	2	..	1	..	..	..	3	..	..	..	2	..	..	..	1	..	1	..	2	..	1	..	14
Black Weir	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Totals	1	1	..	2	..	2	..	..	4	3	11	..	8	2	12	..	7	2	..	2	1	3	..	1	44	18

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